Amino Acid and nucleotide sequence of the murine OKT3 heavy chain variable region (Accession #A222621)

```
MERHWIFLLLLSVTAGVHSQVQLQQSGAELARPGASVKMSCKASYTFTRYTMHWVKQRPGQGLEWIGYINPSRGYTN
YNQKFKDKATLTTDKSSSTAYMQLSSLTSEDSAVYYCARYYDDHYCLDYWGQGTTLTVSSAKTTAPSVYPLAPVCGD
TTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHPASSTKVD
KKIEPRGPTIKPCPPCKCPAPNLLGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQ
TQTHREDYNSTLRVVSALPIQHQDWMSGKEFKCKVNNKDLPAPIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTL
TCMVTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKSFS
RTPGK

ORIGIN
        1 gaattcccct ctccacagac actgaaaact ctgactcaac atggaaaggc ctggatctt
       61 tctactcctg ttgtcagtaa ctgcaggtgt ccactcccag gtccagctgc agcagtctgg
      121 ggctgaactg gcaagacctg gggcctcagt gaagatgtcc tgcaaggctt ctggctacac
      181 ctttactagg tacacgatgc actgggtaaa acagaggcct ggacagggtc tggaatggat
      241 tggatacatt aatcctagcc gtggttatac taattacaat cagaagttca aggacaaggc
      301 cacattgact acagacaaat cctccagcac agcctacatg caactgagca gcctgacatc
      361 tgaggactct gcagtctatt actgtgcaag atattatgat gatcattact gccttgacta
      421 ctggggccaa ggcaccactc tcacagtctc ctcagccaaa acaacagccc catcggtcta
      481 tccactggcc cctgtgtgtg gagatacaac tggctcctcg gtgactctag gatgcctggt
```

FIG. 1A

```
541  caagggttat ttccctgagc cagtgacctt gacctggaac tctggatccc tgtccagtgg
601  tgtgcacacc ttcccagctg tcctgcagtc tgacctctac accctcagca gctcagtgac
661  tgtaacctcg agcacctggc ccagccagtc catcacctgc aatgtggccc acccggcaag
721  cagcaccaag gtggacaaga aaattgagcc cagagggccc acaatcaagc cctgtcctcc
781  atgcaaatgc ccagcaccta acctcttggg tggaccatcc gtcttcatct tccctccaaa
841  gatcaaggat gtactcatga tctccctgag ccccatagtc acatgtgtgg tggtggatgt
901  gagcgaggat gacccagatg tccagatcag ctggtttgtg aacaacgtgg aagtacacac
961  agctcagaca caaacccata gagaggatta caacagtact ctccgggtgg tcagtgccct
1021 ccccatccag caccaggact ggatgagtgg caaggagttc aaatgcaagg tcaacaacaa
1081 agacctccca gcgcccatcg agagaaccat ctcaaaaccc aaagggtcag taagagctcc
1141 acaggtatat gtcttgcctc caccagaaga agagatgact aagaaacagg tcactctgac
1201 ctgcatggtc acagacttca tgcctgaaga catttacgtg gagtggacca acaacgggaa
1261 aacagagcta aactacaaga acactgaacc agtcctggac tctgatggtt cttacttcat
1321 gtacagcaag ctgagagtgg aaaagaagaa ctgggtggaa agaaatagct actcctgttc
1381 agtggtccac gagggtctgc acaatcacca cacgactaag agcttctccc ggactccggg
1441 taaatgagct cagcacccac aaaactctca ggtccaaaga gacacccaca ctcatctcca
1501 tgcttccctt gtataaataa agcacccagc aatgcctggg accatgtaaa aaaaaaaaaa
1561 aaaggaattc
```

FIG. 1A (Cont.)

Amino Acid and nucleotide sequence of the murine OKT3 light chain variable region (Accession #A22259)

MDFQVQIFSFLLISASVIISRGQIVLTQSPAIMSASPGEKVTMTCSASSSVSYMNWYQQKSGTSPKRWIYD
TSKLASGVPAHFRGSGSGTSYSLTISGMEAEDAATYYCQQWSSNPFTFGSGTKLEINRADTAPTVSIFPPS
SEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSY
TCEATHKTSTSPIVKSFNRNEC

ORIGIN

```
        1 gaattcccaa agacaaaatg gattttcaag tgcagatttt cagcttcctg
          ctaatcagtg
       61 cctcagtcat aatatccaga ggacaaattg ttctcaccca gtctccagca
          atcatgtctg
      121 catctccagg ggagaaggtc accatgacct gcagtgccag ctcaagtgta
          agttacatga
      181 actggtacca gcagaagtca ggcacctccc ccaaaagatg gatttatgac
          acatccaaac
      241 tggcttctgg agtccctgct cacttcaggg gcagtgggtc tgggacctct
          tactctctca
      301 caatcagcgg catggaggct gaagatgctg ccacttatta ctgccagcag
          tggagtagta
      361 acccattcac gttcggctcg gggacaaagt tggaaataaa ccgggctgat
          actgcaccaa
      421 ctgtatccat cttcccacca tccagtgagc agttaacatc tggaggtgcc
          tcagtcgtgt
```

FIG. 1B

```
481 gcttcttgaa caacttctac cccaaagaca tcaatgtcaa gtggaagatt
     gatggcagtg
541 aacgacaaaa tggcgtcctg aacagttgga ctgatcagga cagcaaagac
     agcacctaca
601 gcatgagcag caccctcacg ttgaccaagg acgagtatga acgacataac
     agctatacct
661 gtgaggccac tcacaagaca tcaacttcac ccattgtcaa gagcttcaac
     aggaatgagt
721 gttagagaca aaggtcctga gacgccacca ccagctccca gctccatcct
     atcttccctt
781 ctaaggtctt ggaggcttcc ccacaagcgc ttaccactgt tgcggtgctc
     taaacctcct
841 cccacctcct tctcctcctc ctccctttcc ttggctttta tcatgctaat
     atttgcagaa
901 aatattcaat aaagtgagtc tttgccttga aaaaaaaaaa aaa
```

FIG. 1B (Cont.)

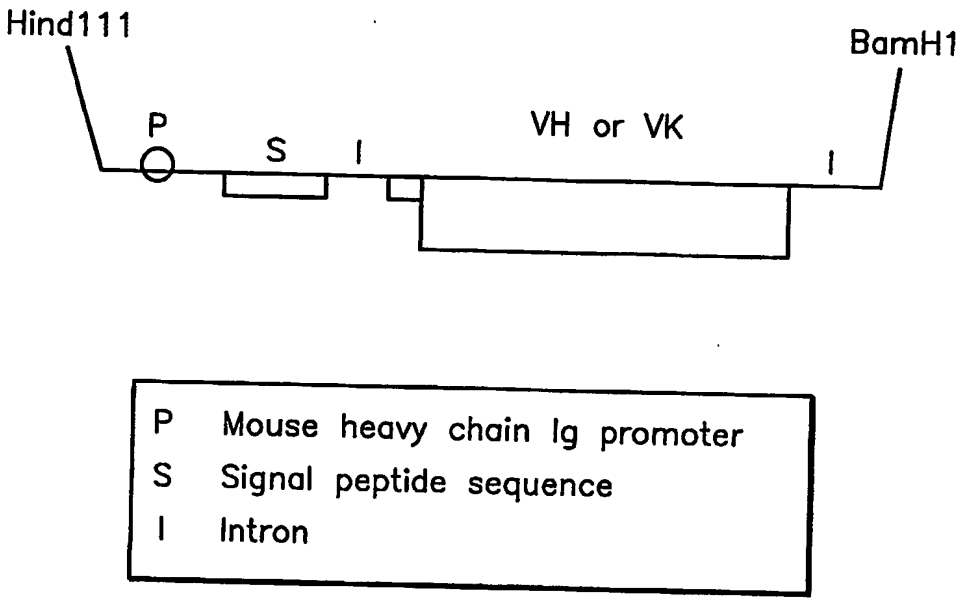
Hind111
BamH1
P
S
I
VH or VK
I
P Mouse heavy chain Ig promoter
S Signal peptide sequence
I Intron

FIG. 2

OKT3 VH gene construct.

Nucleic Acid and amino acid sequences of murine

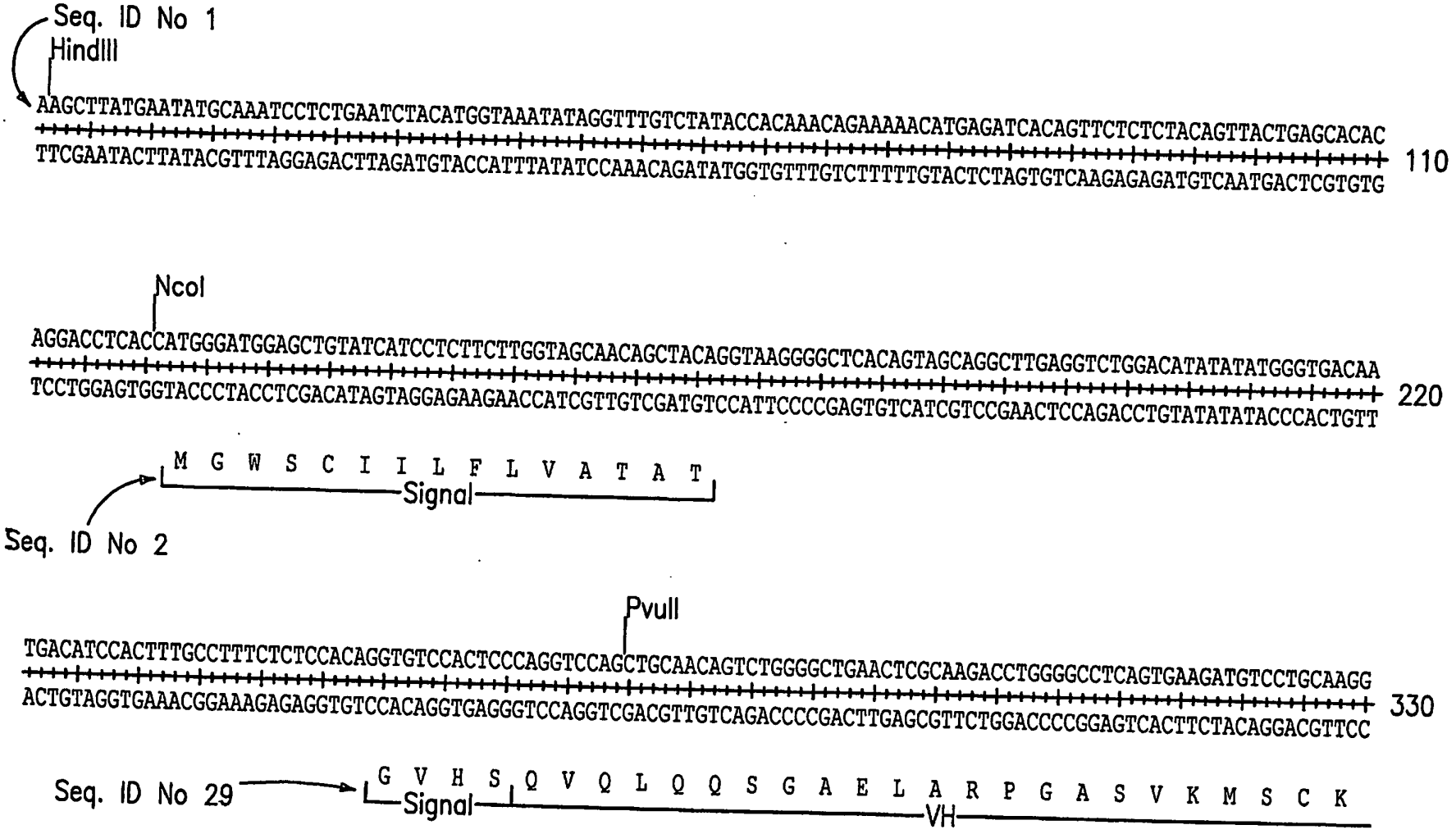

FIG. 3

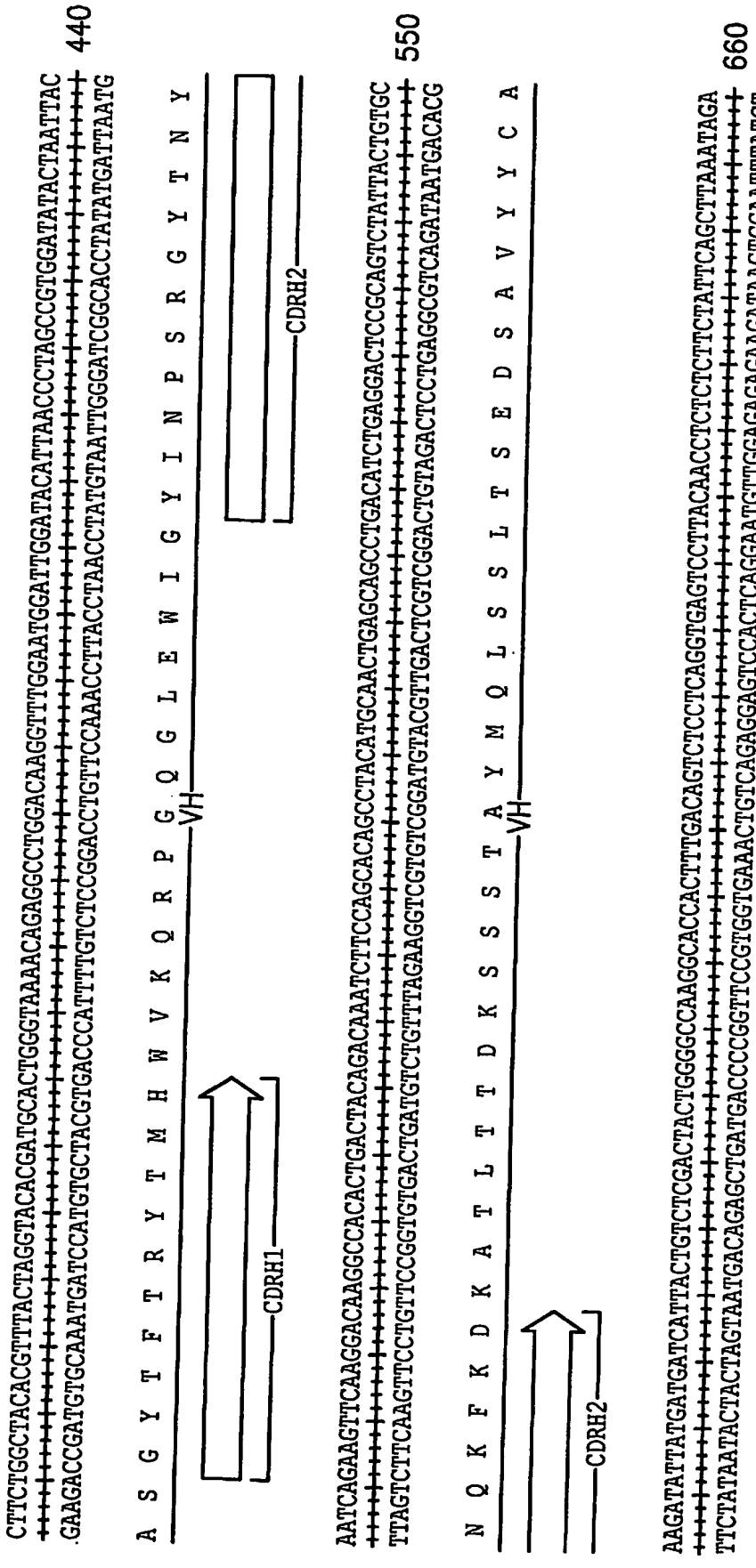
CTTCTGGCTACACGTTTACTAGGTACACGATGCACTGGGTAAAACAGAGGCCTGGACAAGGTTTGGAATGGATTGGATACATTAACCCTAGCCGTGGATATACTAATTAC
GAAGACCGATGTGCAAATGATCCATGTGCTACGTGACCCATTTTGTCTCCGGACCTGTTCCAAACCTTACCTAACCTATGTAATTGGGATCGGCACCTATATGATTAATG
440
A S G Y T F T R Y T M H W V K Q R P G Q G L E W I G Y I N P S R G Y T N Y
VH
CDRH1
CDRH2
AATCAGAAGTTCAAGGACAAGGCCACACTGACTACAGACAAATCTTCCAGCACAGCCTACATGCAACTGAGCAGCCTGACATCTGAGGACTCCGCAGTCTATTACTGTGC
TTAGTCTTCAAGTTCCTGTTCCGGTGTGACTGATGTCTGTTTAGAAGGTCGTGTCGGATGTACGTTGACTCGTCGGACTGTAGACTCCTGAGGCGTCAGATAATGACACG
550
N Q K F K D K A T L T T D K S S S T A Y M Q L S S L T S E D S A V Y Y C A
VH
CDRH2
AAGATATTATGATGATCATTACTGTCTCGACTACTGGGGCCAAGGCACCACTTTGACAGTCTCCTCAGGTGAGTCCTTACAACCTCTCTTCTATTCAGCTTAAATAGA
TTCTATAATACTACTAGTAATGACAGAGCTGATGACCCCGGTTCCGTGGTGAAACTGTCAGAGGAGTCCACTCAGGAATGTTGGAGAGAAGATAAGTCGAATTTATCT
660
R Y Y D D H Y C L D Y W G Q G T T L T V S S
VH
CDRH3

FIG. 3 (Cont.)

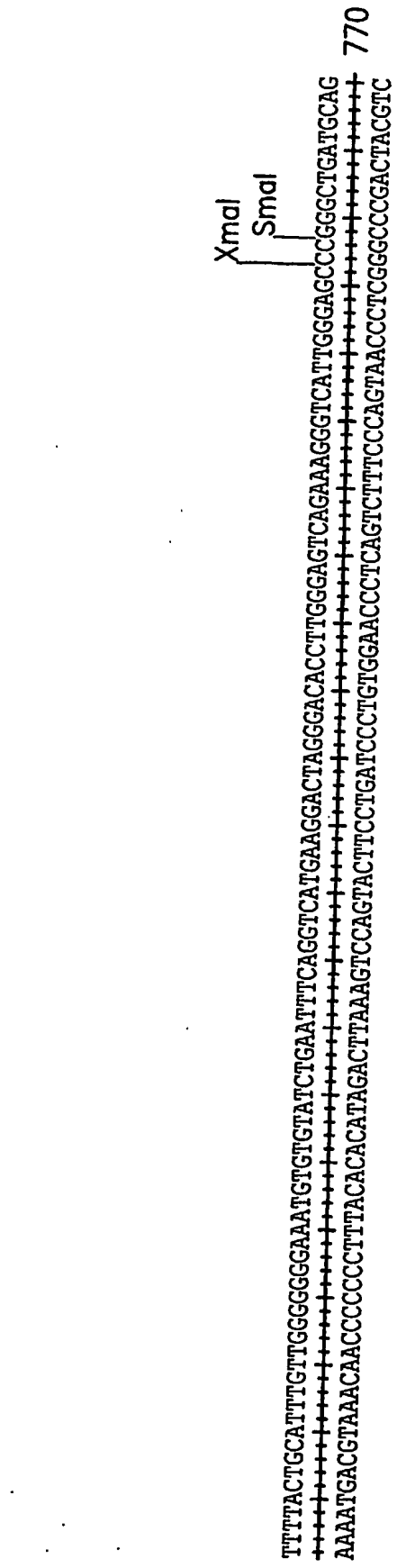
XmaI
SmaI
770
TTTTACTGCATTTGTTGGGGGGGAAATGTGTGTATCTGAATTTCAGGTCATGAAGGACTAGGGACACCTTGGGAGTCAGAAAGGGTCATTGGGAGCCCGGGCTGATGCAG
AAAATGACGTAAACAACCCCCCCTTTACACACATAGACTTAAAGTCCAGTACTTCCTGATCCCTGTGGAACCCTCAGTCTTTCCCAGTAACCCTCGGGCCCGACTACGTC
BamHI
ACAGACATCCTCAGCTCCCAGACTTCATGGCCAGAGATTTATAGGATCC
TGTCTGTAGGAGTCGAGGGTCTGAAGTACCGGTCTCTAAATATCCTAGG
819

FIG. 3 (Cont.)

OKT3 VL gene construct. Nucleic acid and amino acid sequences of murine

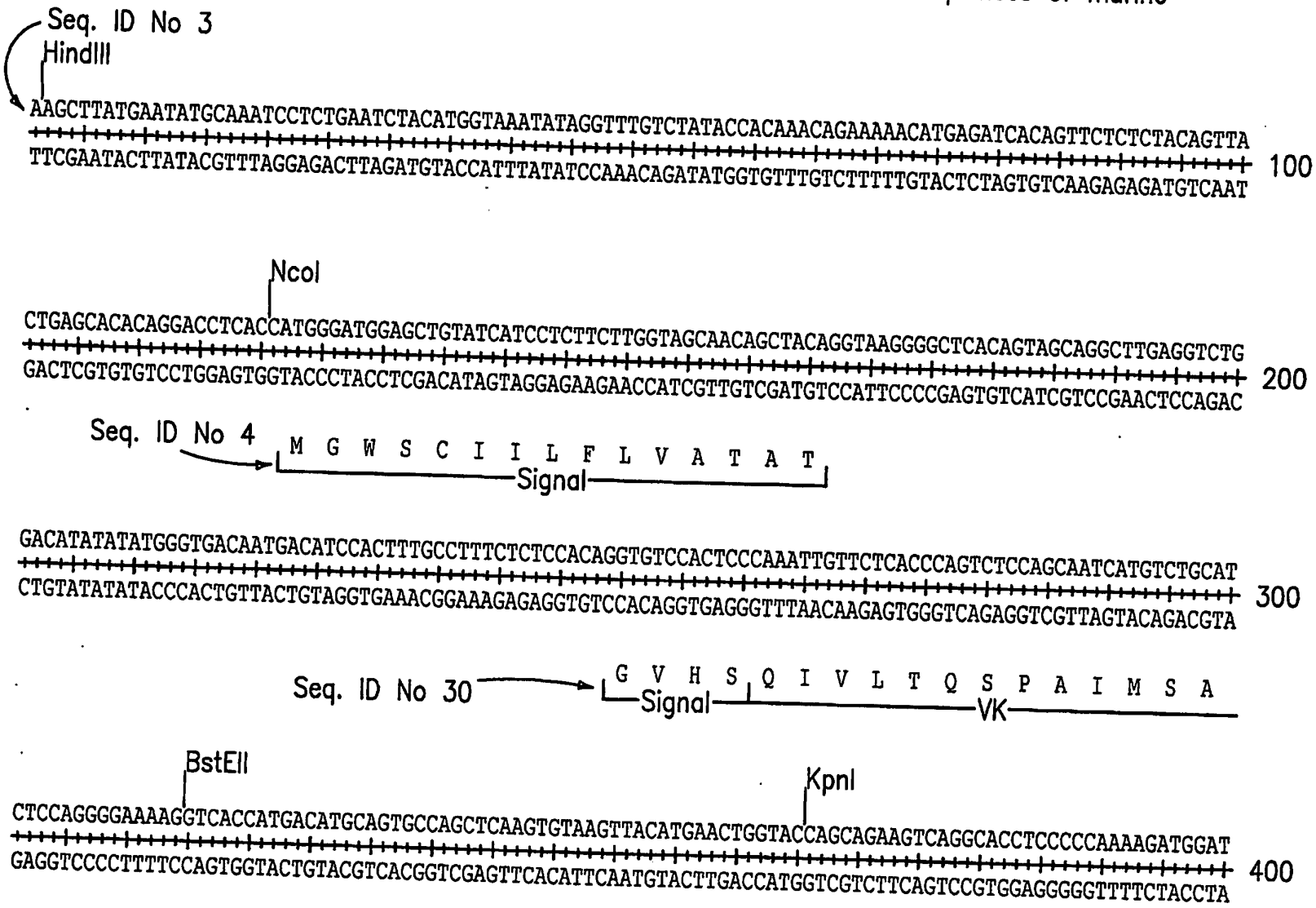

FIG. 4

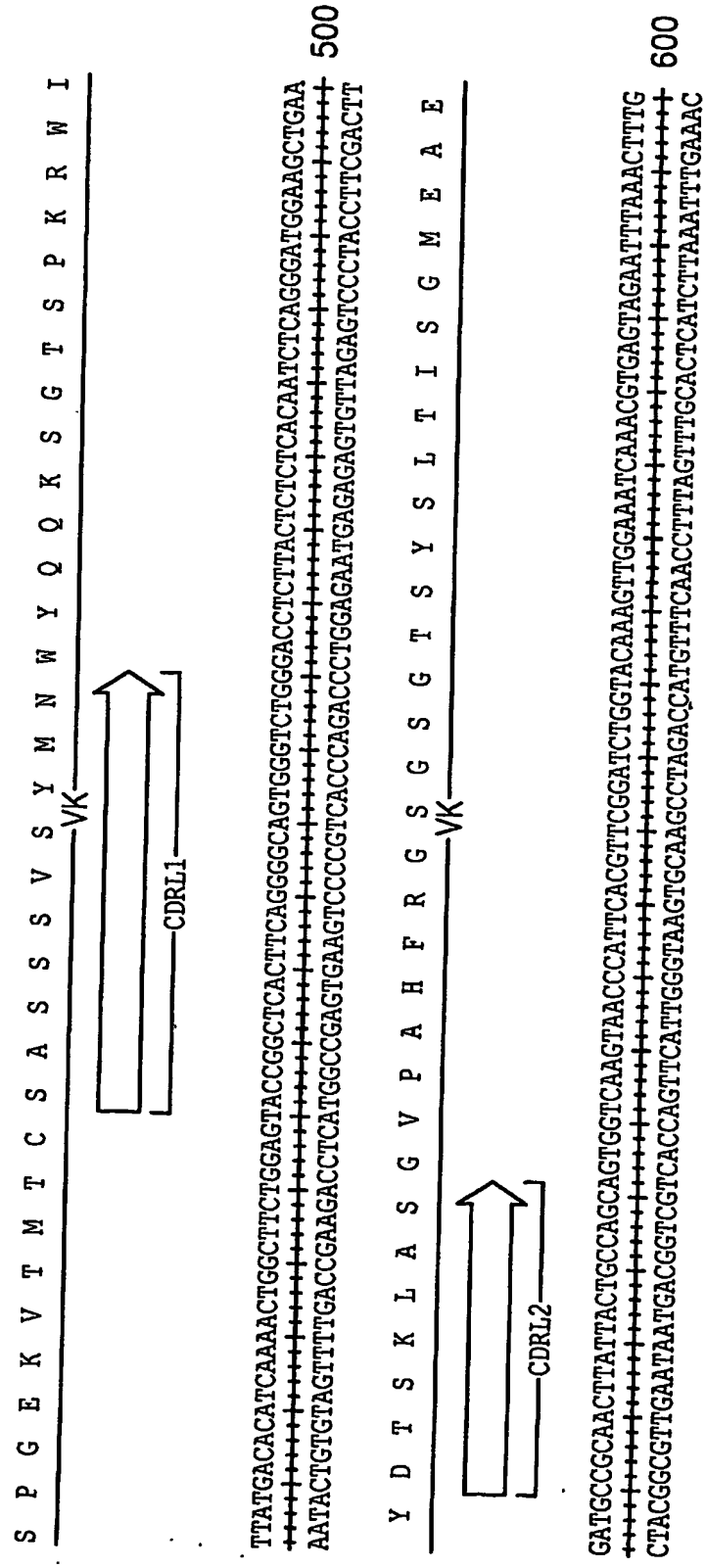
S P G E K V T M T C S A S S S V S Y M N W Y Q Q K S G T S P K R W I
VK
CDRL1
TTATGACACATCAAAACTGGCTTCTGGAGTACCGGCTCACTTCAGGGGCAGTGGGTCTGGGACCTCTTACTCTCTCACAATCTCAGGGATGGAAGCTGAA
AATACTGTGTAGTTTTGACCGAAGACCTCATGGCCGAGTGAAGTCCCCGTCACCCAGACCCTGGAGAATGAGAGAGTGTTAGAGTCCCTACCTTCGACTT
500
Y D T S K L A S G V P A H F R G S G S G T S Y S L T I S G M E A E
VK
CDRL2
GATGCCGCAACTTATTACTGCCAGCAGTGGTCAAGTAACCCATTCACGTTCGGATCTGGTACAAAGTTGGAAATCAACGTGAGTAGAATTTAAACTTTG
CTACGGCGTTGAATAATGACGGTCGTCACCAGTTCATTGGGTAAGTGCAAGCCTAGACCATGTTTCAACCTTTAGTTTGCACTCATCTTAAATTTGAAAC
600
D A A T Y Y C Q Q W S S N P F T F G S G T K L E I K
VK
CDRL3
BamHI
CTTCCTCAGTTGGATCC
GAAGGAGTCAACCTAGG
617

FIG. 4 (Cont.)

Schematic map of the vector Apex−1 3F4V_HHuGamma4.

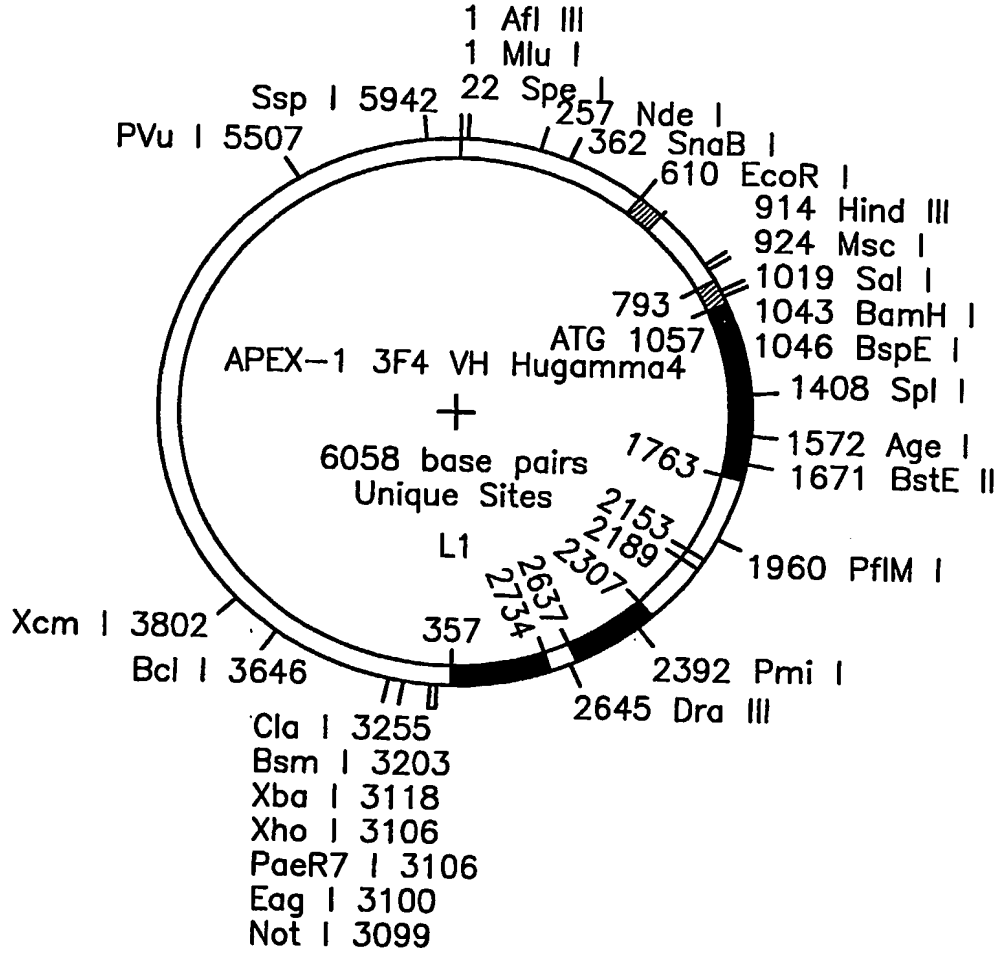

FIG. 5A

Vector sequence (APEX−1 3F4V$_H$HuGamma4)

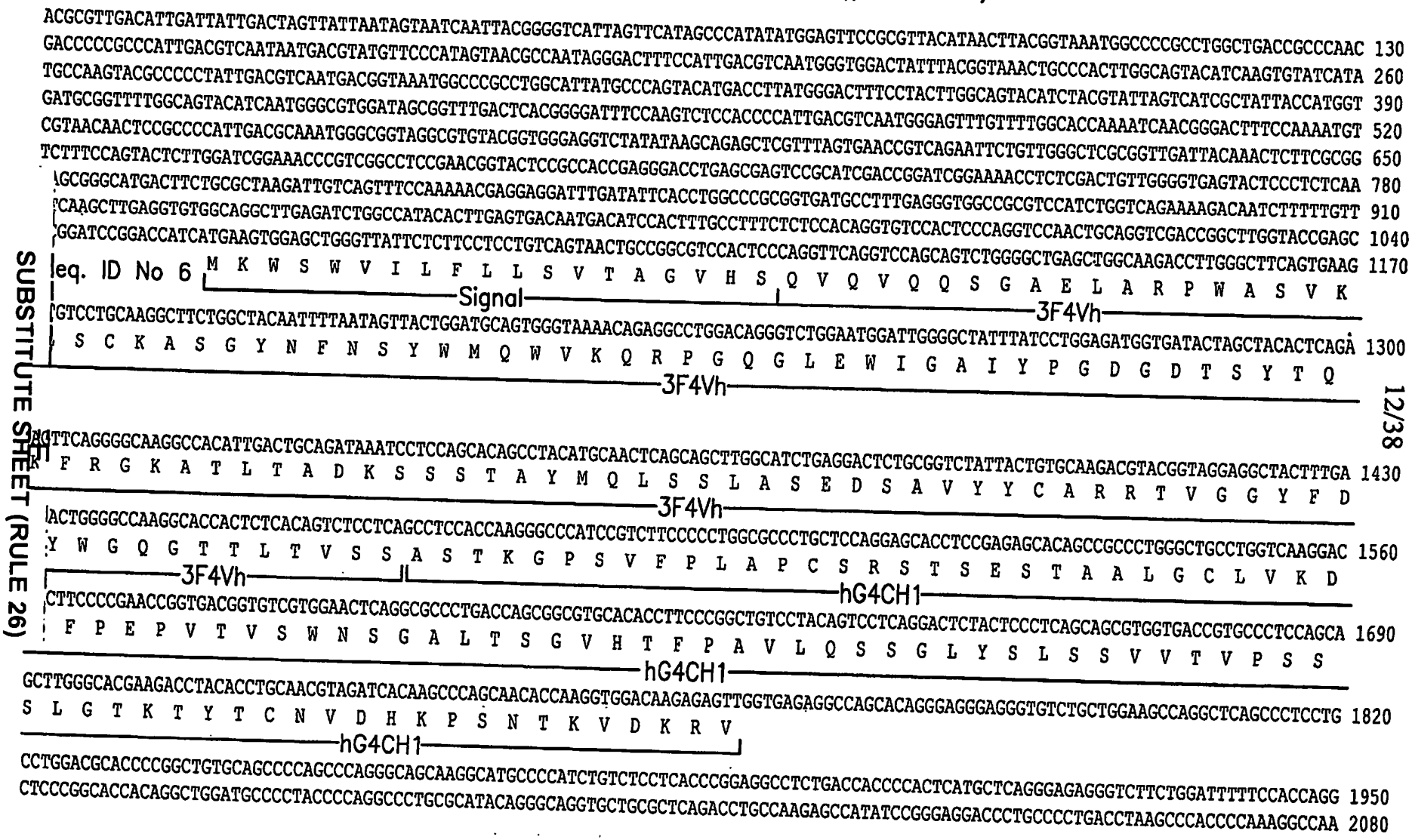

FIG. 5B

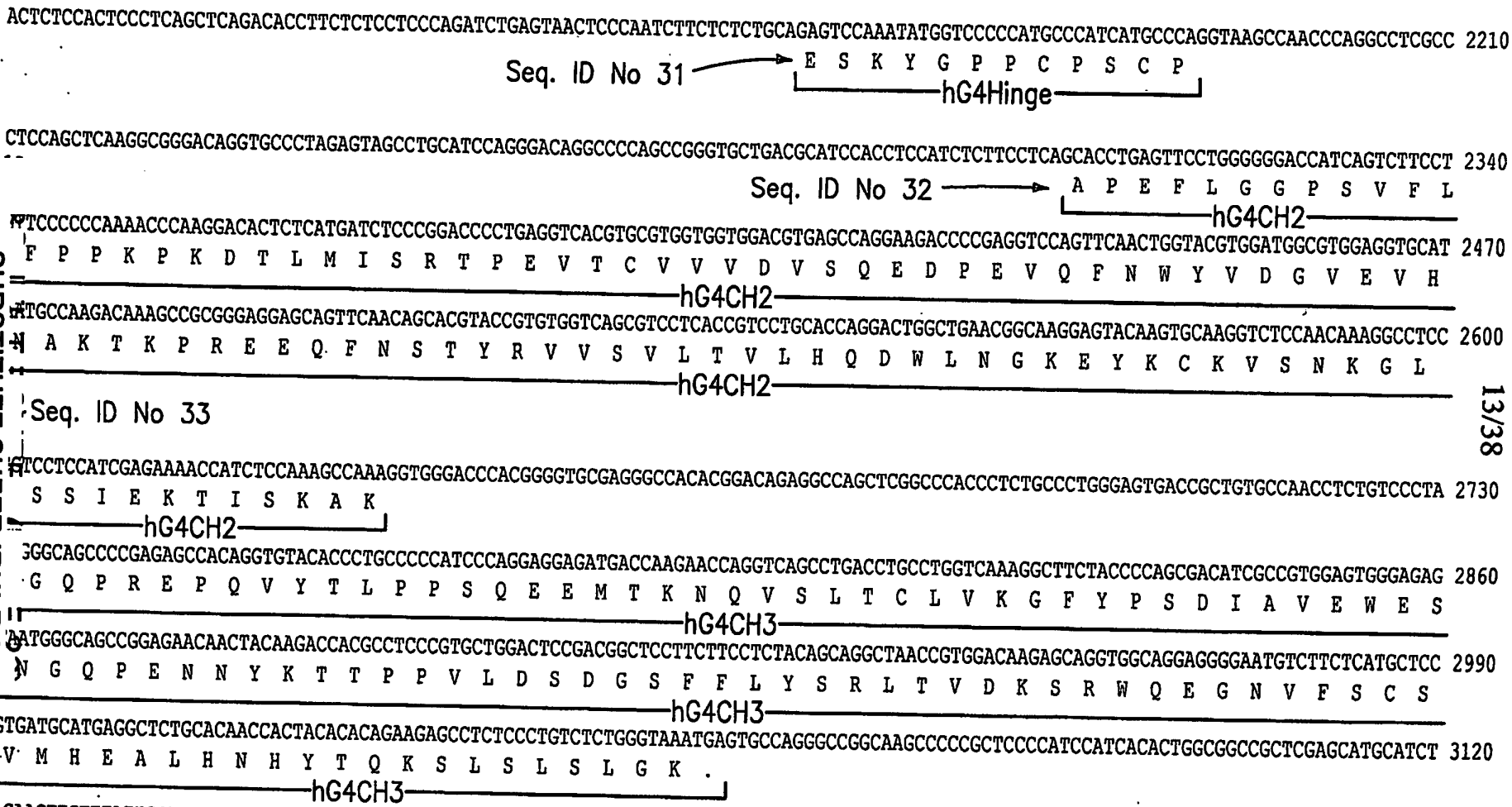
ACTCTCCACTCCCTCAGCTCAGACACCTTCTCTCCTCCCAGATCTGAGTAACTCCCAATCTTCTCTCTGCAGAGTCCAAATATGGTCCCCCATGCCCATCATGCCCAGGTAAGCCAACCCAGGCCTCGCC 2210
Seq. ID No 31
E S K Y G P P C P S C P
hG4Hinge
CTCCAGCTCAAGGCGGGACAGGTGCCCTAGAGTAGCCTGCATCCAGGGACAGGCCCCAGCCGGGTGCTGACGCATCCACCTCCATCTCTTCCTCAGCACCTGAGTTCCTGGGGGGACCATCAGTCTTCCT 2340
Seq. ID No 32
A P E F L G G P S V F L
hG4CH2
TTCCCCCCAAAACCCAAGGACACTCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGGTGGACGTGAGCCAGGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGATGGCGTGGAGGTGCAT 2470
F P P K P K D T L M I S R T P E V T C V V V D V S Q E D P E V Q F N W Y V D G V E V H
hG4CH2
ATGCCAAGACAAAGCCGCGGGAGGAGCAGTTCAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCC 2600
N A K T K P R E E Q F N S T Y R V V S V L T V L H Q D W L N G K E Y K C K V S N K G L
hG4CH2
Seq. ID No 33
ATCCTCCATCGAGAAAACCATCTCCAAAGCCAAAGGTGGGACCCACGGGGTGCGAGGGCCACACGGACAGAGGCCAGCTCGGCCCACCCTCTGCCCTGGGAGTGACCGCTGTGCCAACCTCTGTCCCTA 2730
S S I E K T I S K A K
hG4CH2
GGGCAGCCCCGAGAGCCACAGGTGTACACCCTGCCCCCATCCCAGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAG 2860
G Q P R E P Q V Y T L P P S Q E E M T K N Q V S L T C L V K G F Y P S D I A V E W E S
hG4CH3
AATGGGCAGCCGGAGAACAACTACAAGACCACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAGGCTAACCGTGGACAAGAGCAGGTGGCAGGAGGGGAATGTCTTCTCATGCTCC 2990
N G Q P E N N Y K T T P P V L D S D G S F F L Y S R L T V D K S R W Q E G N V F S C S
hG4CH3
GTGATGCATGAGGCTCTGCACAACCACTACACACAGAAGAGCCTCTCCCTGTCTCTGGGTAAATGAGTGCCAGGGCCGGCAAGCCCCCGCTCCCCATCCATCACACTGGCGGCCGCTCGAGCATGCATCT 3120
V M H E A L H N H Y T Q K S L S L S L G K .
hG4CH3
AGAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTATCTTATCATGT 3250
CTGGATCGATCCCGCCATGGTATCAACGCCATATTTCTATTTACAGTAGGGACCTCTTCGTTGTGTAGGTACCGCTGTATTCCTAGGGAAATAGTAGAGGCACCTTGAACTGTCTGCATCAGCCATATAG 3380

FIG. 5B (Cont.)

GCCCCGCTGTTCGACTTACAAACACAGGCACAGTACTGACAAACCCATACACCTCCTCTGAAATACCCATAGTTGCTAGGGCTGTCTCCGAACTCATTACACCCTCCAAAGTCAGAGCTGTAATTTCGCC 3510
ATCAAGGGCAGCGAGGGCTTCTCCAGATAAAATAGCTTCTGCCGAGAGTCCCGTAAGGGTAGACACTTCAGCTAATCCCTCGATGAGGTCTACTAGAATAGTCAGTGCGGCTCCCATTTTGAAAATTCAC 3640
GACTTGATCAGCTTCAGAAGATGGCGGAGGGCCTCCAACACAGTAATTTTCCTCCCGACTCTTAAAATAGAAAATGTCAAGTCAGTTAAGCAGGAAGTGGACTAACTGACGCAGCTGGCCGTGCGACAT 3770
CTCTTTTAATTAGTTGCTAGGCAACGCCCTCCAGAGGGCGTGTGGTTTTGCAAGAGGAAGCAAAAGCCTCTCCACCCAGGCCTAGAATGTTTCCACCCAATCATTACTATGACAACAGCTGTTTTTTT 3900
AGTATTAAGCAGAGGCCGGGGACCCCTGGGCCCGCTTACTCTGGAGAAAAAGAAGAGAGGCATTGTAGAGGCTTCCAGAGGCAACTTGTCAAAACAGGACTGCTTCTATTTCTGTCACACTGTCTGGCCC 4030
TGTCACAAGGTCCAGCACCTCCATACCCCCTTTAATAAGCAGTTTGGGAACGGGTGCGGGTCTTACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGACTAATT 4160
TTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGGAGCTCCCAGCAAAAGGCCAGGAACCGTAAAAAG 4290
GCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCC 4420
TCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAA 4550
GCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGC 4680
AGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCT 4810
CTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAA 4940
CGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTAC 5070
CAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGA 5200
TACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGC 5330
TAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 5460
TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCAT 5590
CCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAA 5720
AGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTT 5850
TCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGA 5980
GCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTG 6058

FIG. 5B (Cont.)

SUBSTITUTE SHEET (RULE 26)

Schematic map of the vector Apex−1 3F4V_HHuG2/G4.

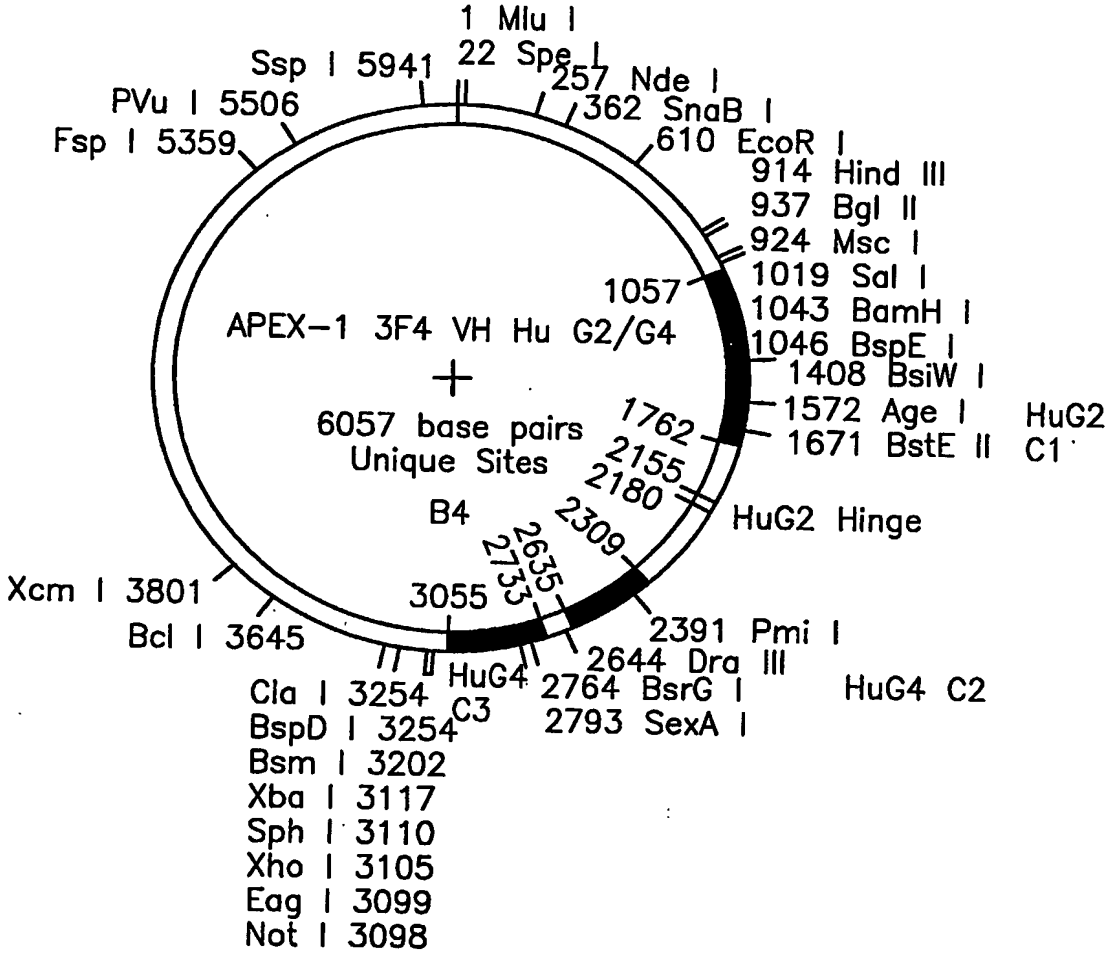

FIG. 6A

Vector Sequence (APEX−13F4V$_H$HuG2/G4)

```
ACGCGTTGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCCGCCTGGCTG 120
ACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGACTATTTACGGTAAACTGCCCACTTGGC 240
AGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAGTACAT 360
CTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACATCAATGGGCGTGGATAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG 480
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTAGT 600
GAACCGTCAGAATTCTGTTGGGCTCGCGGTTGATTACAAACTCTTCGCGGTCTTTCCAGTACTCTTGGATCGGAAACCCGTCGGCCTCCGAACGGTACTCCGCCACCGAGGGACCTGAGC 720
GAGTCCGCATCGACCGGATCGGAAAACCTCTCGACTGTTGGGGTGAGTACTCCCTCTCAAAAGCGGGCATGACTTCTGCGCTAAGATTGTCAGTTTCCAAAAACGAGGAGGATTTGATAT 840
CACCTGGCCCGCGGTGATGCCTTTGAGGGTGGCCGCGTCCATCTGGTCAGAAAAGACAATCTTTTTGTTGTCAAGCTTGAGGTGTGGCAGGCTTGAGATCTGGCCATACACTTGAGTGA 960
AATGACATCCACTTTGCCTTTCTCTCCACAGGTGTCCACTCCCAGGTCCAACTGCAGGTCGACCGGCTTGGTACCGAGCTCGGATCCGGACCATCATGAAGTGGAGCTGGGTTATTCTC 1080
                                                    (Seq. ID No: 8) → M K W S W V I L
                                                                      └── Signal ──
TCCTCCTGTCAGTAACTGCCGGCGTCCACTCCCAGGTTCAGGTCCAGCAGTCTGGGGCTGAGCTGGCAAGACCTTGGGCTTCAGTGAAGTTGTCCTGCAAGGCTTCTGGCTACAATTTT 1200
F L L S V T A G V H S Q V Q V Q Q S G A E L A R P W A S V K L S C K A S G Y N F
└── Signal ──┼──────────────────────── 3F4Vh ────────────────────────
ATAGTTACTGGATGCAGTGGGTAAAACAGAGGCCTGGACAGGGTCTGGAATGGATTGGGGCTATTTATCCTGGAGATGGTGATACTAGCTACACTCAGAAGTTCAGGGGCAAGGCCACA 1320
N S Y W M Q W V K Q R P G Q G L E W I G A I Y P G D G D T S Y T Q K F R G K A T
└──────────────────────── 3F4Vh ────────────────────────┼
TGACTGCAGATAAATCCTCCAGCACAGCCTACATGCAACTCAGCAGCTTGGCATCTGAGGACTCTGCGGTCTATTACTGTGCAAGACGTACGGTAGGAGGCTACTTTGACTACTGGGGC 1440
L T A D K S S S T A Y M Q L S S L A S E D S A V Y Y C A R R T V G G Y F D Y W G
└──────────────────────── 3F4Vh ────────────────────────
CAAGGCACCACTCTCACAGTCTCCTCAGCCTCCACCAAGGGCCCATCCGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTCCGAGAGCACAGCCGCCCTGGGCTGCCTGGTCAAGGAC 1560
Q G T T L T V S S A S T K G P S V F P L A P C S R S T S E S T A A L G C L V K D
└── 3F4Vh ──┼──────────────────────── G2G4CH1 ────────────────────────
```

FIG. 6B

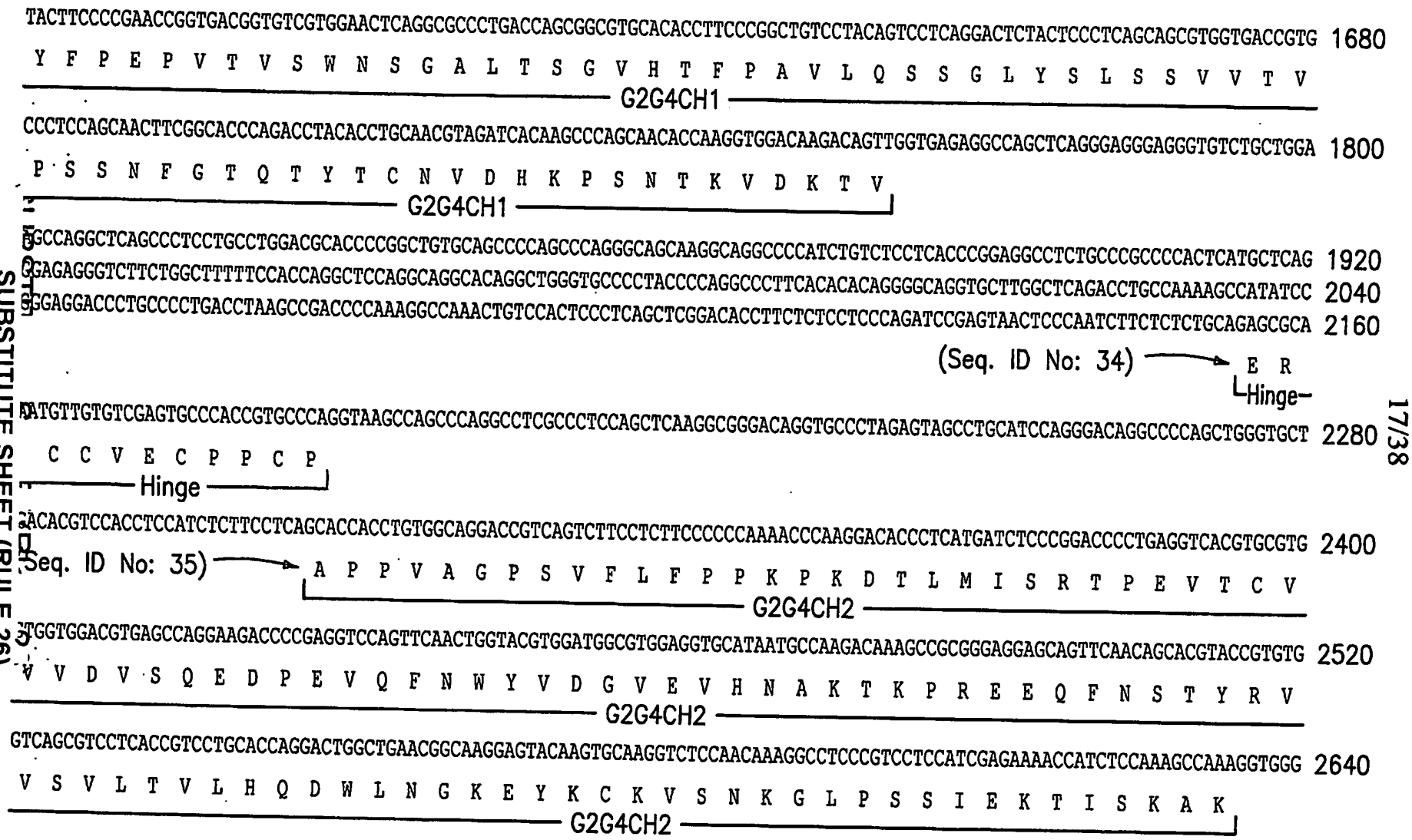
TACTTCCCCGAACCGGTGACGGTGTCGTGGAACTCAGGCGCCCTGACCAGCGGCGTGCACACCTTCCCGGCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTG 1680
Y F P E P V T V S W N S G A L T S G V H T F P A V L Q S S G L Y S L S S V V T V
G2G4CH1
CCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCAGCAACACCAAGGTGGACAAGACAGTTGGTGAGAGGCCAGCTCAGGGAGGGAGGGTGTCTGCTGGA 1800
P S S N F G T Q T Y T C N V D H K P S N T K V D K T V
G2G4CH1
GGCCAGGCTCAGCCCTCCTGCCTGGACGCACCCCGGCTGTGCAGCCCCAGCCCAGGGCAGCAAGGCAGGCCCCATCTGTCTCCTCACCCGGAGGCCTCTGCCCGCCCCACTCATGCTCAG 1920
GGAGAGGGTCTTCTGGCTTTTTCCACCAGGCTCCAGGCAGGCACAGGCTGGGTGCCCCTACCCCAGGCCCTTCACACACAGGGGCAGGTGCTTGGCTCAGACCTGCCAAAAGCCATATCC 2040
GGAGGACCCTGCCCCTGACCTAAGCCGACCCCAAAGGCCAAACTGTCCACTCCCTCAGCTCGGACACCTTCTCTCCTCCCAGATCCGAGTAACTCCCAATCTTCTCTCTGCAGAGCGCA 2160
(Seq. ID No: 34)
E R
Hinge
ATGTTGTGTCGAGTGCCCACCGTGCCCAGGTAAGCCAGCCCAGGCCTCGCCCTCCAGCTCAAGGCGGGACAGGTGCCCTAGAGTAGCCTGCATCCAGGGACAGGCCCCAGCTGGGTGCT 2280
C C V E C P P C P
Hinge
ACACGTCCACCTCCATCTCTTCCTCAGCACCACCTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTG 2400
Seq. ID No: 35)
A P P V A G P S V F L F P P K P K D T L M I S R T P E V T C V
G2G4CH2
TGGTGGACGTGAGCCAGGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGATGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTTCAACAGCACGTACCGTGTG 2520
V V D V S Q E D P E V Q F N W Y V D G V E V H N A K T K P R E E Q F N S T Y R V
G2G4CH2
GTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCGTCCTCCATCGAGAAAACCATCTCCAAAGCCAAAGGTGGG 2640
V S V L T V L H Q D W L N G K E Y K C K V S N K G L P S S I E K T I S K A K
G2G4CH2

FIG. 6B (Cont.)

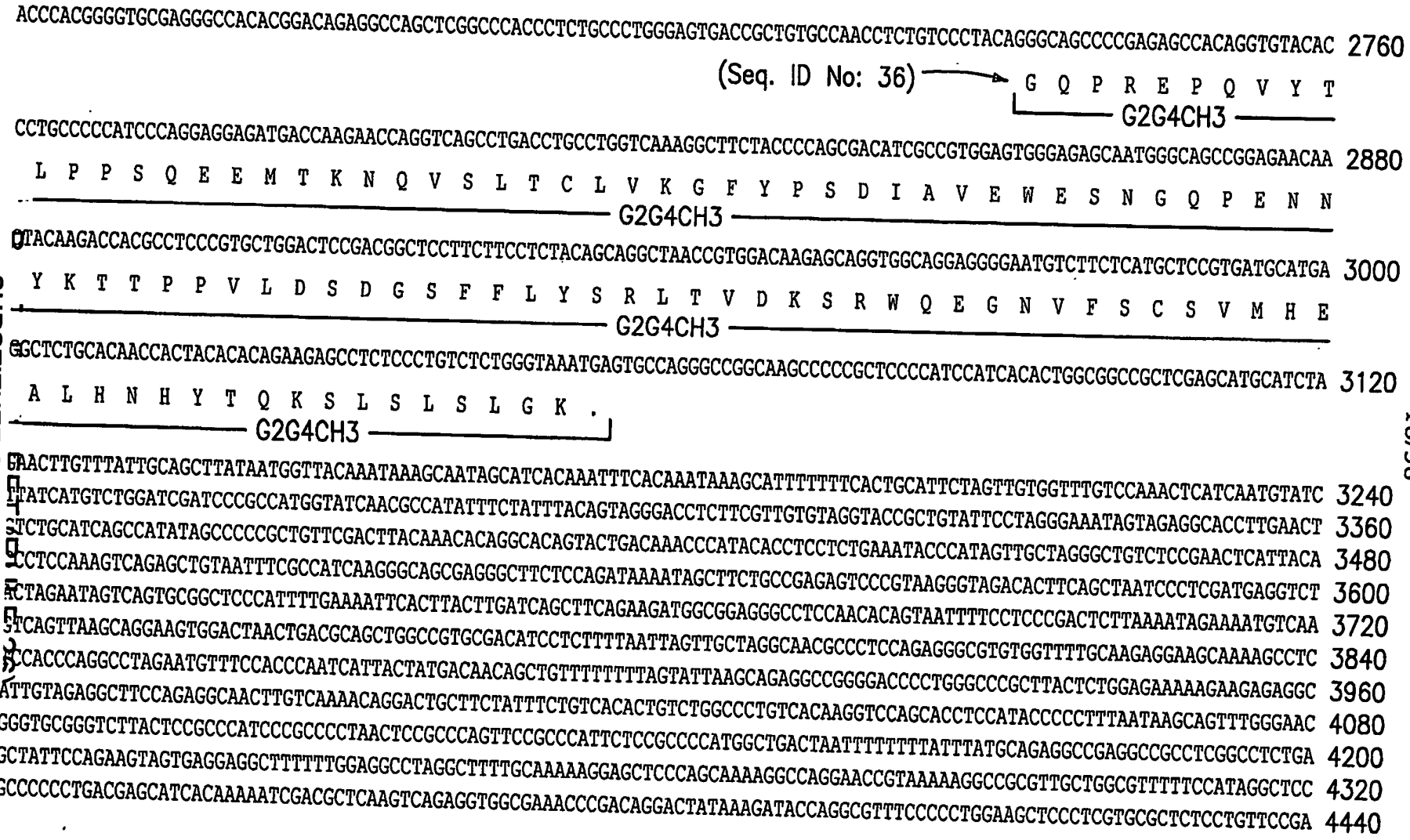
ACCCACGGGGTGCGAGGGCCACACGGACAGAGGCCAGCTCGGCCCACCCTCTGCCCTGGGAGTGACCGCTGTGCCAACCTCTGTCCCTACAGGGCAGCCCCGAGAGCCACAGGTGTACAC 2760
(Seq. ID No: 36)
G Q P R E P Q V Y T
G2G4CH3
CCTGCCCCCATCCCAGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAA 2880
L P P S Q E E M T K N Q V S L T C L V K G F Y P S D I A V E W E S N G Q P E N N
G2G4CH3
GTACAAGACCACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAGGCTAACCGTGGACAAGAGCAGGTGGCAGGAGGGGAATGTCTTCTCATGCTCCGTGATGCATGA 3000
Y K T T P P V L D S D G S F F L Y S R L T V D K S R W Q E G N V F S C S V M H E
G2G4CH3
GGCTCTGCACAACCACTACACACAGAAGAGCCTCTCCCTGTCTCTGGGTAAATGAGTGCCAGGGCCGGCAAGCCCCCGCTCCCCATCCATCACACTGGCGGCCGCTCGAGCATGCATCTA 3120
A L H N H Y T Q K S L S L S L G K .
G2G4CH3
GAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTATC 3240
TTATCATGTCTGGATCGATCCCGCCATGGTATCAACGCCATATTTCTATTTACAGTAGGGACCTCTTCGTTGTGTAGGTACCGCTGTATTCCTAGGGAAATAGTAGAGGCACCTTGAACT 3360
CTCTGCATCAGCCATATAGCCCCCGCTGTTCGACTTACAAACACAGGCACAGTACTGACAAACCCATACACCTCCTCTGAAATACCCATAGTTGCTAGGGCTGTCTCCGAACTCATTACA 3480
CCTCCAAAGTCAGAGCTGTAATTTCGCCATCAAGGGCAGCGAGGGCTTCTCCAGATAAAATAGCTTCTGCCGAGAGTCCCGTAAGGGTAGACACTTCAGCTAATCCCTCGATGAGGTCT 3600
CTAGAATAGTCAGTGCGGCTCCCATTTTGAAAATTCACTTACTTGATCAGCTTCAGAAGATGGCGGAGGGCCTCCAACACAGTAATTTTCCTCCCGACTCTTAAAATAGAAAATGTCAA 3720
TCAGTTAAGCAGGAAGTGGACTAACTGACGCAGCTGGCCGTGCGACATCCTCTTTTAATTAGTTGCTAGGCAACGCCCTCCAGAGGGCGTGTGGTTTTGCAAGAGGAAGCAAAAGCCTC 3840
CCACCCAGGCCTAGAATGTTTCCACCCAATCATTACTATGACAACAGCTGTTTTTTTTAGTATTAAGCAGAGGCCGGGGACCCCTGGGCCCGCTTACTCTGGAGAAAAAGAAGAGAGGC 3960
ATTGTAGAGGCTTCCAGAGGCAACTTGTCAAAACAGGACTGCTTCTATTTCTGTCACACTGTCTGGCCCTGTCACAAGGTCCAGCACCTCCATACCCCCTTTAATAAGCAGTTTGGGAAC 4080
GGGTGCGGGTCTTACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGA 4200
GCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGGAGCTCCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCC 4320
GCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGA 4440

FIG. 6B (Cont.)

```
CCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTG 4560
TGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCA 4680
GAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAG 4800
TTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGG 4920
GGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTA 5040
TATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGA 5160
TACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTC 5280
CTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCAC 5400
GCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAA 5520
GTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAG 5640
AATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCT 5760
CAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATG 5880
CGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTA 6000
TTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTG 6057
```

FIG. 6B (Cont.)

Map of the heavy chain expression vector pSVgptHuG2/G4 used in

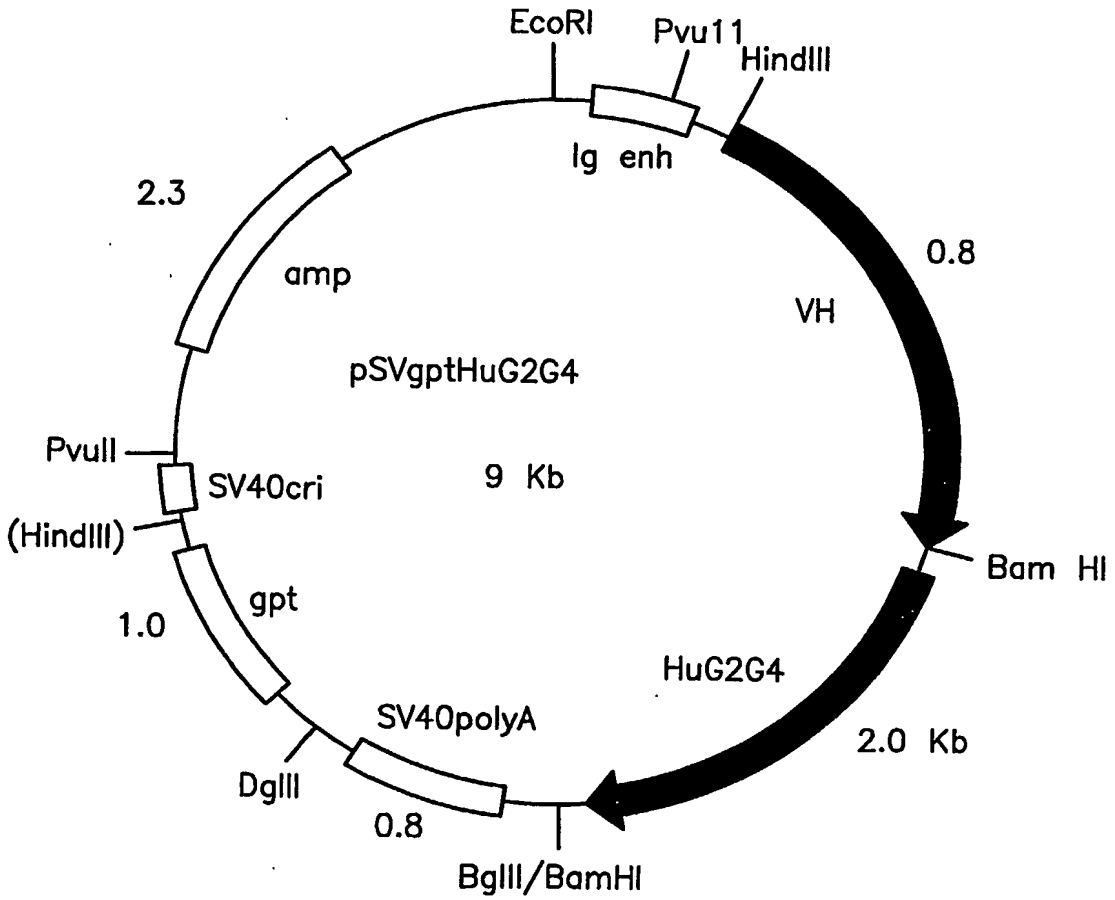

FIG. 7

(Seq. ID No. 9)

Bam HI

5' untranslated intron from native IgG4

GGATCCTCTAGATTGAGCTTTCTGGGGCAGGCCAGGCCTGACCTTGGCTGGG
GGCAGGGAGGGGGCTAAGGTGACGCAGGTGGCGCCAGCCAGGTGCACACCC
AATGCCCATGAGCCCAGACACTGGACCCTGCATGGACCATCGCGGATAGACA
AGAACCGAGGGGCCTCTGCGCCCTGGGCCCAGCTCTGTCCCACACCGCGGTC
ACATGGCACCACCTCTCTTGCAGCCTCCACCAAGGGCCCATCCGTCTTCCCCC
TGGCGCCCTGCTCCAGGAGCACCTCCGAGAGCACAGCCGCCCTGGGCTGCCT
GGTCAAGGACTACTTCCCCGAACCGGTGACGGTGTCGTGGAACTCAGGCGCC
CTGACCAGCGGCGTGCACACCTTCCCGGCTGTCCTACAGTCCTCAGGACTCTA
CTCCCTCAGCAGCGTGGTGACCGTGCCCTCCAGCAACTTCGGCACCCAGACC
TACACCTGCAACGTAGATCACAAGCCCAGCAACACCAAGGTGGACAAGACA
GTTGGTGAGAGGCCAGCTCAGGGAGGGAGGGTGTCTGCTGGAAGCCAGGCTC
AGCCCTCCTGCCTGGACGCACCCCGGCTGTGCAGCCCCAGCCCAGGGCAGCA
AGGCAGGCCCCATCTGTCTCCTCACCCGGAGGCCTCTGCCCGCCCCACTCATG
CTCAGGGAGAGGGTCTTCTGGCTTTTTCCACCAGGCTCCAGGGAGGCACAGG
CTGGGTGCCCCTACCCCAGGCCCTTCACACACAGGGGCAGGTGCTTGGCTCA
GACCTGCCAAAAGCCATATCCGGGAGGACCCTGCCCCTGACCTAAGCCGACC
CCAAAGGCCAAACTGTCCACTCCCTCAGCTCGGACACCTTCTCTCCTCCCAGA
TCCGAGTAACTCCCAATCTTCTCTCTGCAGAGCGCAAATGTTGTGTCGAGTGC
CCACCGTGCCCAGGTAAGCCAGCCCAGGCCTCGCCCTCCAGCTCAAGGCGGG
ACAGGTGCCCTAGAGTAGCCTGCATCCAGGGACAGGCCCCAGCTGGGTGCTG
ACACGTCCACCTCCATCTCTTCCTCAGCACCACCTGTGGCAGGACCGTCAGTC
TTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGA
GGTCACGTGCGTGGTGGTGGACGTGAGCCAGGAAGACCCCGAGGTCCAGTTC
AACTGGTACGTGGATGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGG
GAGGAGCAGTTCAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCTGC
ACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAG
GCCTCCCGTCCTCCATCGAGAAAACCATCTCCAAAGCCAAAGGTGGGACCCA
CGGGGTGCGAGGGCCACATGGACAGAGGTCAGCTCGGCCCACCCTCTGCCCT
GGGAGTGACCGCTGTGCCAACCTCTGTCCCTACAGGGCAGCCCCGAGAGCCA
CAGGTGTACACCCTGCCCCCATCCCAGGAGGAGATGACCAAGAACCAGGTCA
GCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGTG
GGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACGCCTCCCGTGCT
GGACTCCGACGGCTCCTTCTTCCTCTACAGCAGGCTAACCGTGGACAAGAGC
AGGTGGCAGGAGGGGAATGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGC
ACAACCACTACACACAGAAGAGCCTCTCCCTGTCTCTGGGTAAATGAGTGCC

3' untranslated region from native IgG4

AGGGCCGGCAAGCCCCCGCTCCCCGGGCTCTCGGGGTCGCGCGAGGATGCTT
GGCACGTACCCCGTCTACATACTTCCCAGGCACCCAGCATGGAAATAAAGCA
CCCACCACTGCCCTGGGCCCCTGTGAGACTGTGATGGTTCTTTCCACGGGTCA
GGCCGAGTCTGAGGCCTGAGTGACATGAGGaAttCAGAtctGGatCC

Bgl II

FIG. 8

Map of the light chain expression vector pSVgptHuCK

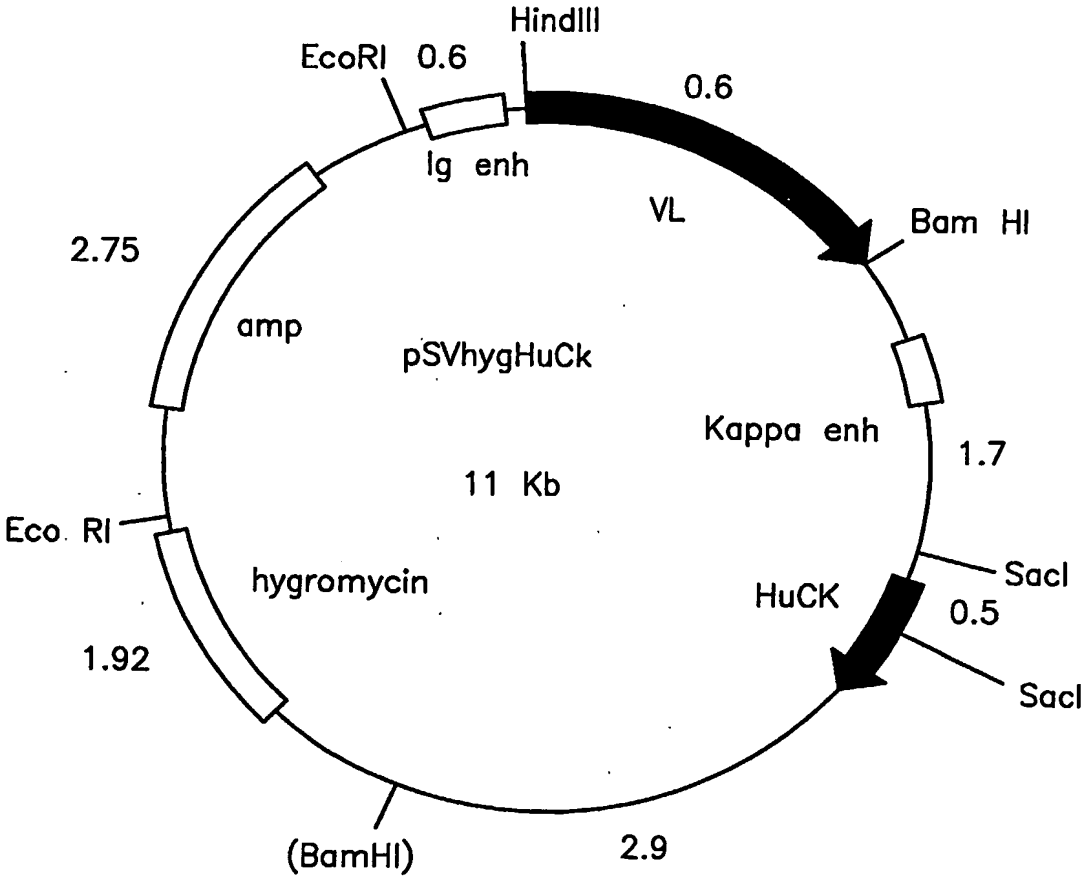

FIG. 9

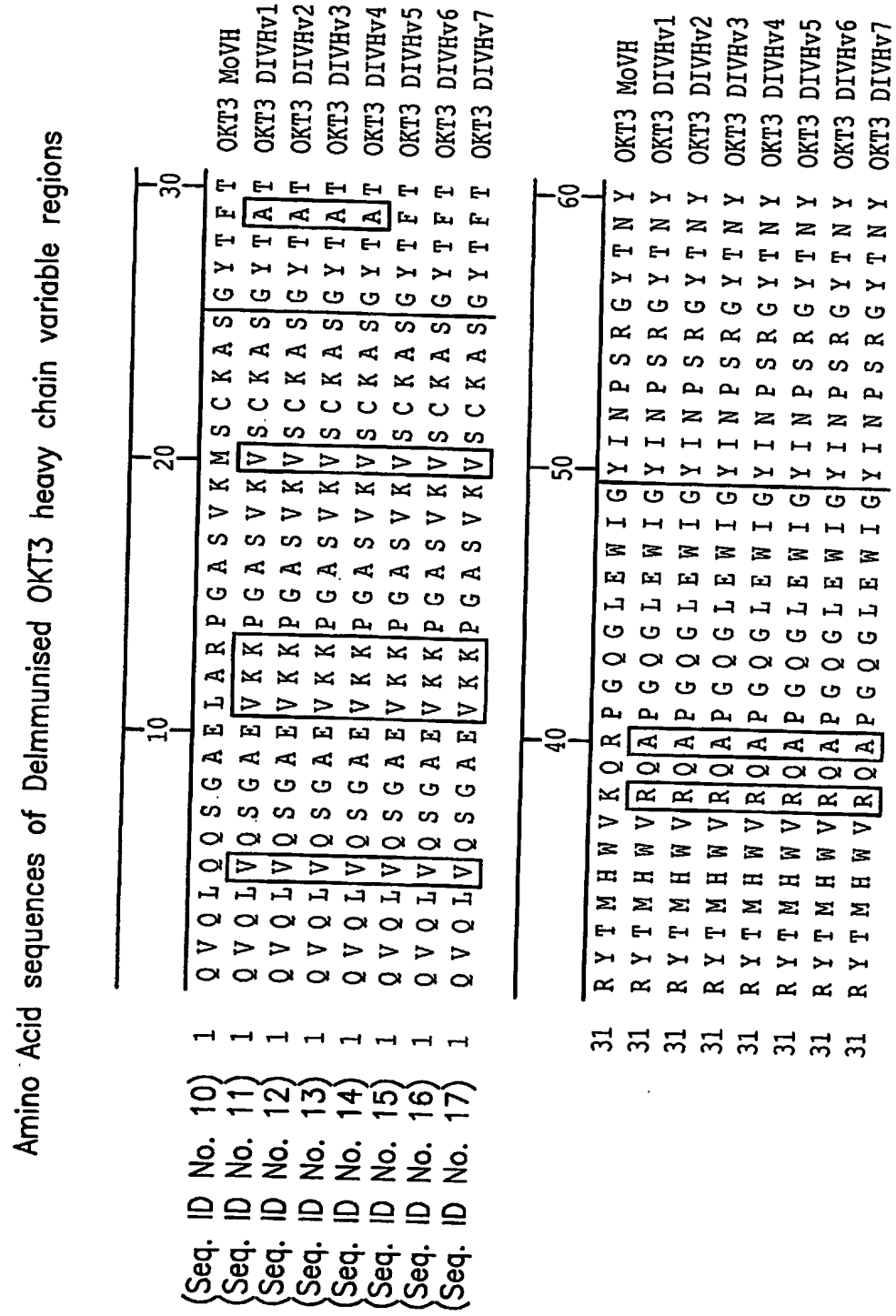
Amino Acid sequences of Delmmunised OKT3 heavy chain variable regions
(Seq. ID No. 10) 1 QVQLQQSGAELARPGASVKMSCKASGYTFT OKT3 MoVH
(Seq. ID No. 11) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTAT OKT3 DIVHv1
(Seq. ID No. 12) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTAT OKT3 DIVHv2
(Seq. ID No. 13) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTAT OKT3 DIVHv3
(Seq. ID No. 14) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTAT OKT3 DIVHv4
(Seq. ID No. 15) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTFT OKT3 DIVHv5
(Seq. ID No. 16) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTFT OKT3 DIVHv6
(Seq. ID No. 17) 1 QVQLVQSGAEVKKPGASVKVSCKASGYTFT OKT3 DIVHv7
10
20
30
31 RYTMHWVKQRPGQGLEWIGYINPSRGYTNY OKT3 MoVH
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv1
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv2
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv3
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv4
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv5
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv6
31 RYTMHWVRQAPGQGLEWIGYINPSRGYTNY OKT3 DIVHv7
40
50
60

FIG. 10

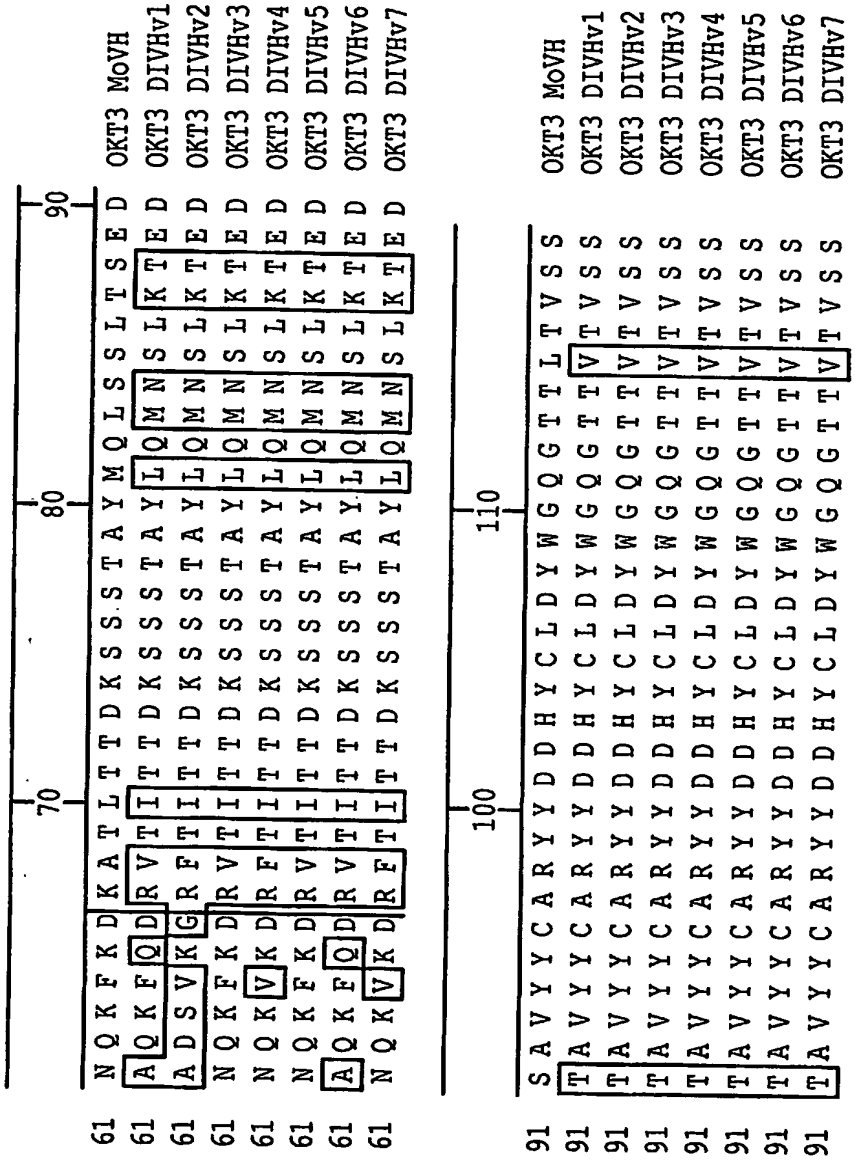
OKT3 MoVH
OKT3 DIVHv1
OKT3 DIVHv2
OKT3 DIVHv3
OKT3 DIVHv4
OKT3 DIVHv5
OKT3 DIVHv6
OKT3 DIVHv7
70
80
90
100
110
61
91

FIG. 10 (Cont.)

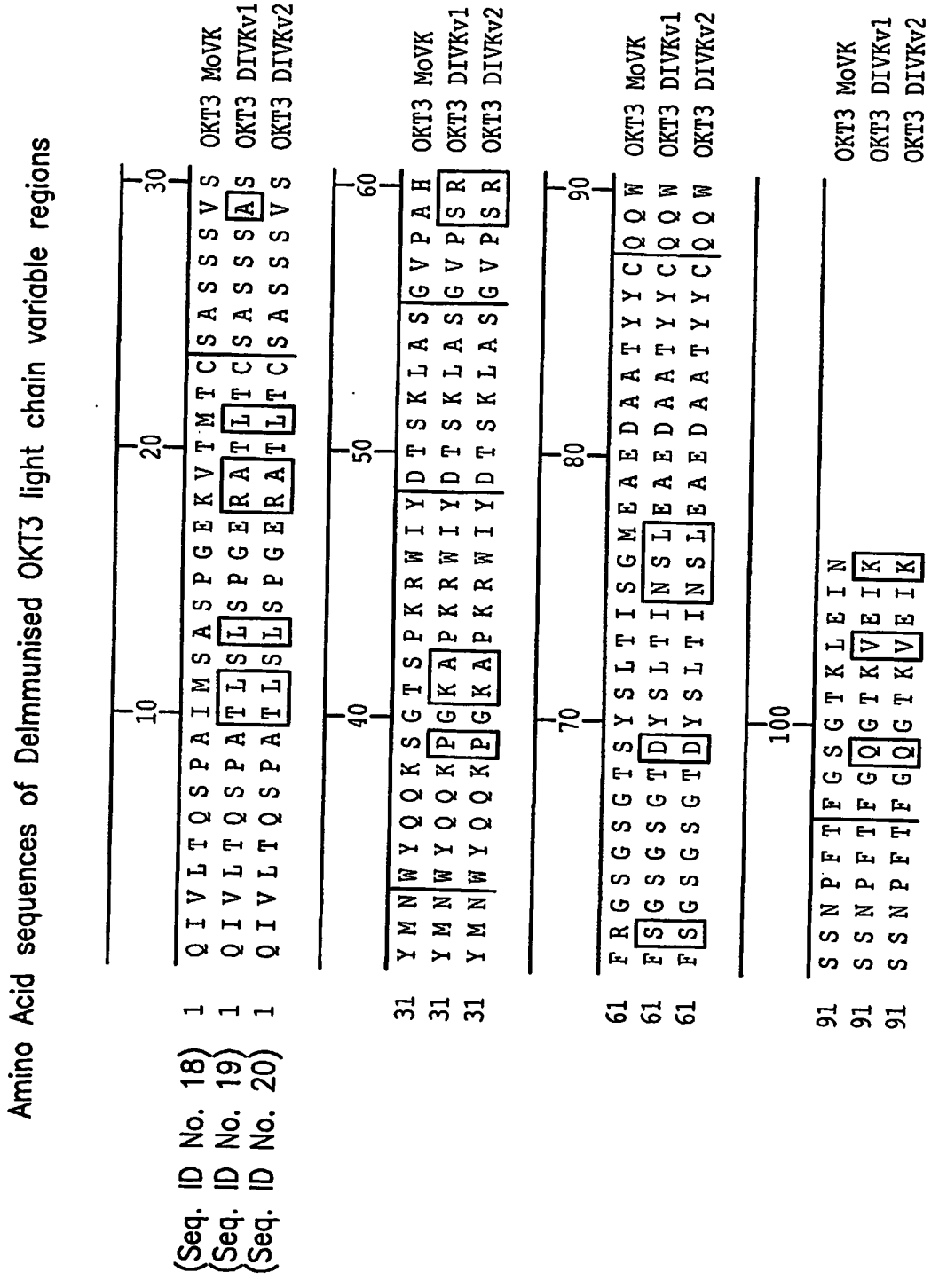
Amino Acid sequences of Delmmunised OKT3 light chain variable regions
(Seq. ID No. 18)
(Seq. ID No. 19)
(Seq. ID No. 20)
OKT3 MoVK
OKT3 DIVKv1
OKT3 DIVKv2

FIG. 11

OLIGOS FOR CONSTRUCTION OF DIVHs (SEQ ID NOS: 37–57)

KTDIVH1 GAAGTCAAGAAACCTGGGGCCTCAGTGAAGGTGTCCTGCAAGG
KTDIVH2
GCCCCAGGTTTCTTGACTTCAGCCCCAGACTGTACCAGCTGGACCTG
KTDIVH3 TGGGTAAGACAGGCGCCTGGACAAGGTTTGG
KTDIVH4 GTCCAGGCGCCTGTCTTACCCAGTGCATC
KTDIVH4A
AGGCGCCTGTCTTACCCAGTGCATCGTGTACCTAGTAGCCGTGTAGCC
KTDIVH5 CAATCAGAAGTTCAAGGACAGGGTCACAATCACTACAGACAAA
KTDIVH5A CGCTCAGAAGTTCCAGGACAGGGTCACAATCACTACAGACAAA
KTDIVH5B CGCTGACAGTGTCAAGGGCAGGTTCACAATCACTACAGACAAA
KTDIVH5C CAATCAGAAGGTCAAGGACAGGTTCACAATCACTACAGACAAA
KTDIVH6 GTCCTTGAACTTCTGATTGTAATTAGTATATCCACGG
KTDIVH6A GTCCTGGAACTTCTGAGCGTAATTAGTATATCCACGG
KTDIVH6B GCCCTTGACACTGTCAGCGTAATTAGTATATCCACGG
KTDIVH6C GTCCTTGACCTTCTGATTGTAATTAGTATATCCACGG
KTDIVH7 AGCCTGAAAACTGAGGACACCGCAGTCTATTACTG
KTDIVH8 GTCCTCAGTTTTCAGGCTGTTCATTTGCAAGTAGGCTGTGCT
KTDIVH9 CCAAGGCACCACTGTGACAGTCTCCTCAGG
KTDIVH10 CCTGAGGAGACTGTCACAGTGGTGCCTTGG
KT3VHY GGTGTCCACTCCCAGGTCCAGCTG
KT3VHZ CAGCTGGACCTGGGAGTGGACACCTGTGG
VHVK1 GCATGTTGACCCTGACGCAAGCTTATGAATATGCAAA
VH12 GCGATAGCTGGACTGAATGGATCCTATAAATCTCTG

OLIGOS FOR CONSTRUCTION OF DIVKs (SEQ ID NOS: 58–74)

KTDIVK1 CCCTCTCTCTTTCTCCAGGGGAACGCGCCACCTTGACATGCAGTG
KTDIVK2 CCTGGAGAAAGAGAGAGGGTTGCTGGAGACTGGGTG
KTDIVK3
CATGAACTGGTACCAGCAGAAGCCCGGCAAAGCTCCCAAAAGATGGAT
KTDIVK4 CGGGCTTCTGCTGGTACCAGTTCATGTAACTTACACTT
KTDIVK4A CTTCTGCTGGTACCAGTTCATGTAACTTGCACTTGAGC
KTDIVK5
GGGTCTGGGACCGATTACTCTCTCACCATCAATAGTCTGGAAGCTGAAG
KTDIVK6
GTAATCGGTCCCAGACCCACTGCCACTGAAGCGAGACGGTACTCCAG
KTDIVK7 TTCACGTTCGGACAAGGTACAAAGGTGGAAATCAAACG
KTDIVK8 CTTTGTACCTTGTCCGAACGTGAATGGGTTACTTGACC
KKT22 GCGGATCCAGTCGACGAAGCA
KT3VKX CTGAATGGATCCAACTGAGGAAGCAAAGTTTAAATTCTACTCACG
KT3VKY CAAATTGTTCTCACCCAGTCTCCAGCAA
KT3VKZ TTGCTGGAGACTGGGTGAGAACAATTTGGGAG
KT3VKZ2 TGGAGACTGGGTGAGAACAATTTGGGAGTGGACACCTGTGG
KT3VKZ3 AGAGAGGGTTGCTGGAGACTGGGTGAGAACAATTTG
VHVK1 GCATGTTGACCCTGACGCAAGCTTATGAATATGCAAA
VK12 GCGATAGCTGGACTGAATGGATCCAACTGAGGAAGC

DNA and Amino acid sequence of DeImmunised OKT3 VH version 1.

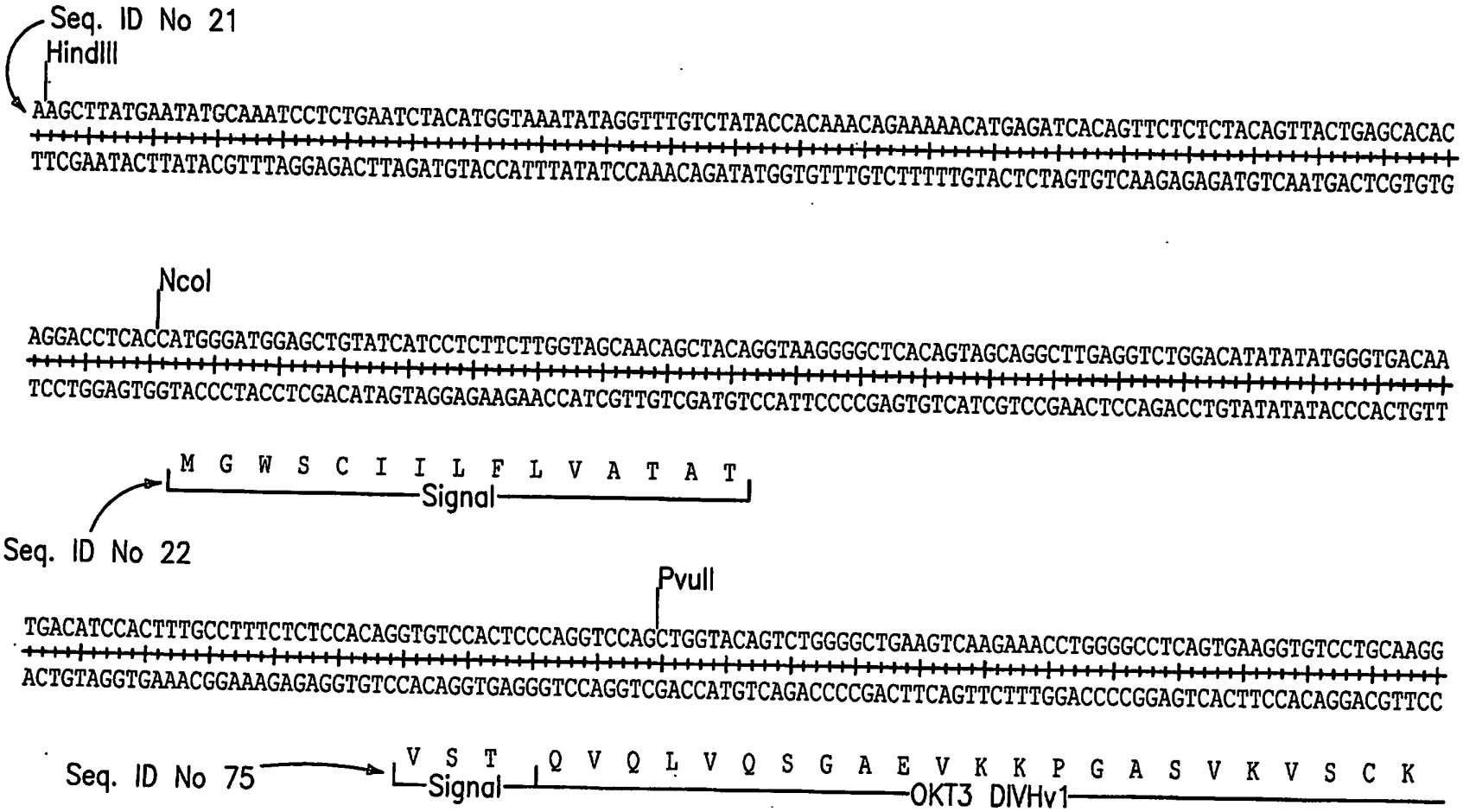

FIG. 13

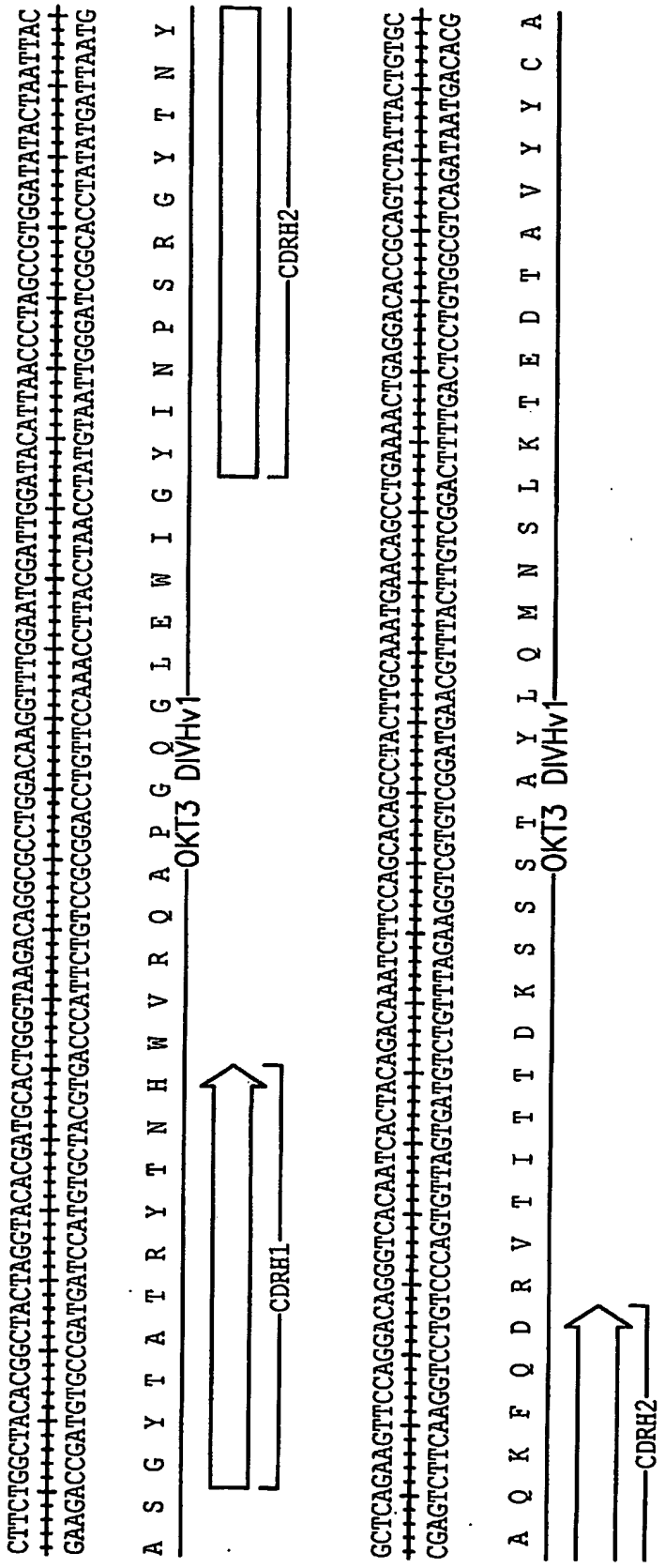
CTTCTGGCTACACGGCTACTAGGTACACGATGCACTGGGTAAGACAGGCGCCTGGACAAGGTTTGGAATGGATTGGATACATTAACCCTAGCCGTGGATATACTAATTAC
GAAGACCGATGTGCCGATGATCCATGTGCTACGTGACCCATTCTGTCCGCGGACCTGTTCCAAACCTTACCTAACCTATGTAATTGGGATCGGCACCTATATGATTAATG
A S G Y T A T R Y T N H W V R Q A P G Q G L E W I G Y I N P S R G Y T N Y
OKT3 DIVHv1
CDRH1
CDRH2
GCTCAGAAGTTCCAGGACAGGGTCACAATCACTACAGACAAATCTTCCAGCACAGCCTACTTGCAAATGAACAGCCTGAAAACTGAGGACACCGCAGTCTATTACTGTGC
CGAGTCTTCAAGGTCCTGTCCCAGTGTTAGATGTCTGTTTAGAAGGTCGTGTCGGATGAACGTTTACTTGTCGGACTTTTGACTCCTGTGGCGTCAGATAATGACACG
A Q K F Q D R V T I T T D K S S S T A Y L Q M N S L K T E D T A V Y Y C A
OKT3 DIVHv1
CDRH2

FIG. 13 (Cont.)

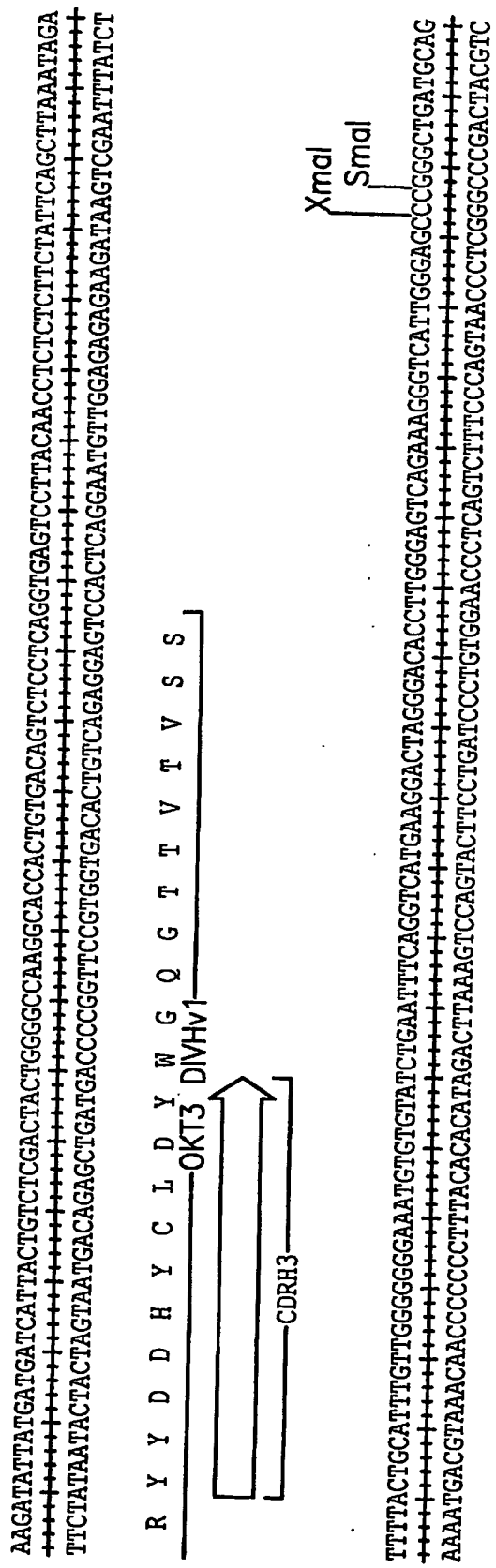
AAGATATTATGATGATCATTACTGTCTCGACTACTGGGGCCAAGGCACCACTGTGACAGTCTCCTCAGGTGAGTCCTTACAACCTCTCTTCTATTCAGCTTAAATAGA
TTCTATAATACTACTAGTAATGACAGAGCTGATGACCCCGGTTCCGTGGTGACACTGTCAGAGGAGTCCACTCAGGAATGTTGGAGAGAAGATAAGTCGAATTTATCT
R Y Y D D H Y C L D Y W G Q G T T V T V S S
OKT3 DIVHv1
CDRH3
XmaI
SmaI
TTTTACTGCATTTGTTGGGGGGGAAATGTGTATCTGAATTTCAGGTCATGAAGGACTAGGGACACCTTGGGAGTCAGAAAGGGTCATTGGGAGCCCGGGCTGATGCAG
AAAATGACGTAAACAACCCCCCCTTTACACACATAGACTTAAAGTCCAGTACTTCCTGATCCCTGTGGAACCCTCAGTCTTTCCCAGTAACCCTCGGGCCCGACTACGTC
BamHI
ACAGACATCCTCAGCTCCCAGACTTCATGGCCAGAGATTTATAGGATCC
TGTCTGTAGGAGTCGAGGGTCTGAAGTACCGGTCTCTAAATATCCTAGG
819

FIG. 13 (Cont.)

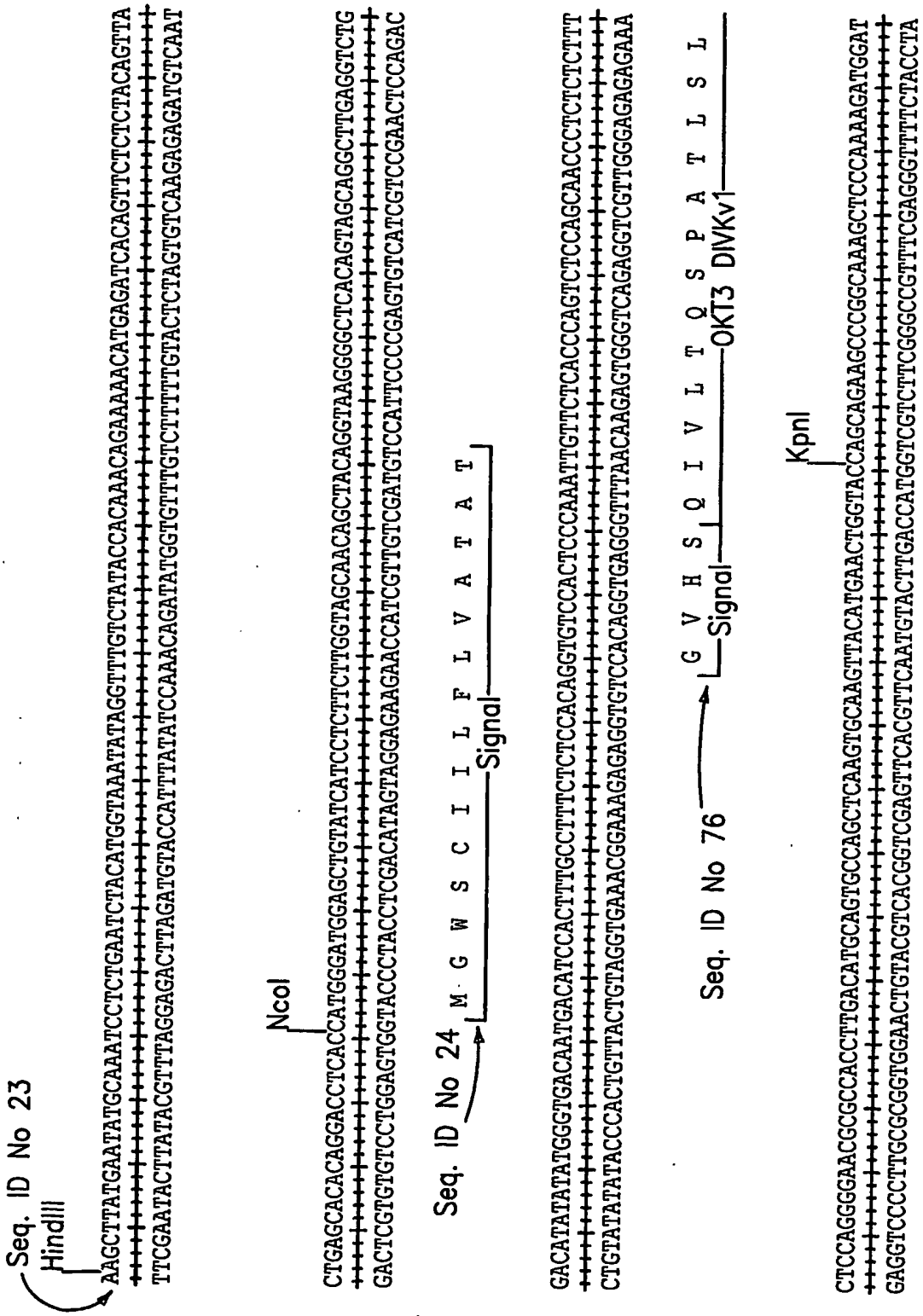
DNA and Amino Acid Sequence of Deimmunised OKT3 VK version 1.
Seq. ID No 23
HindIII
AAGCTTATGAATATGCAAATCCTCTGAATCTACATGGTAAATATAGGTTTGTCTATACCACAAACAGAAAACATGAGATCACAGTTCTCTCTACAGTTA
TTCGAATACTTATACGTTTAGGAGACTTAGATGTACCATTTATATCCAAACAGATATGGTGTTTGTCTTTTTGTACTCTAGTGTCAAGAGATGTCAAT
NcoI
CTGAGCACACAGGACCTCACCATGGGATGGAGCTGTATCATCCTCTTCTTGGTAGCAACAGCTACAGGTAAGGGCTCACAGTAGCAGGCTTGAGGTCTG
GACTCGTGTGTCCTGGAGTGGTACCCTACCTCGACATAGTAGGAGAAGAACCATCGTTGTCGATGTCCATTCCCCGAGTGTCATCGTCCGAACTCCAGAC
Seq. ID No 24
M G W S C I I L F L V A T A T
Signal
GACATATATATGGGTGACAATGACATCCACTTTGCCTTTCTCTCCACAGGTGTCCACTCCCAAATTGTTCTCACCCAGTCTCCAGCAACCCTCTCTTT
CTGTATATATACCCACTGTTACTGTAGGTGAAACGGAAAGAGAGGTGTCCACAGGTGAGGGTTTAACAAGAGTGGGTCAGAGGTCGTTGGGAGAGAAA
Seq. ID No 76
G V H S Q I V L T Q S P A T L S L
Signal
OKT3 DIVKv1
KpnI
CTCCAGGGGAACGCGCCACCTTGACATGCAGTGCCAGCTCAAGTGCAAGTTACATGAACTGGTACCAGCAGAAGCCCGGCAAAGCTCCCAAAAGATGGAT
GAGGTCCCCTTGCGCGGTGGAACTGTACGTCACGGTCGAGTTCACGTTCAATGTACTTGACCATGGTCGTCTTCGGGCCGTTTCGAGGGTTTTCTACCTA

FIG. 14

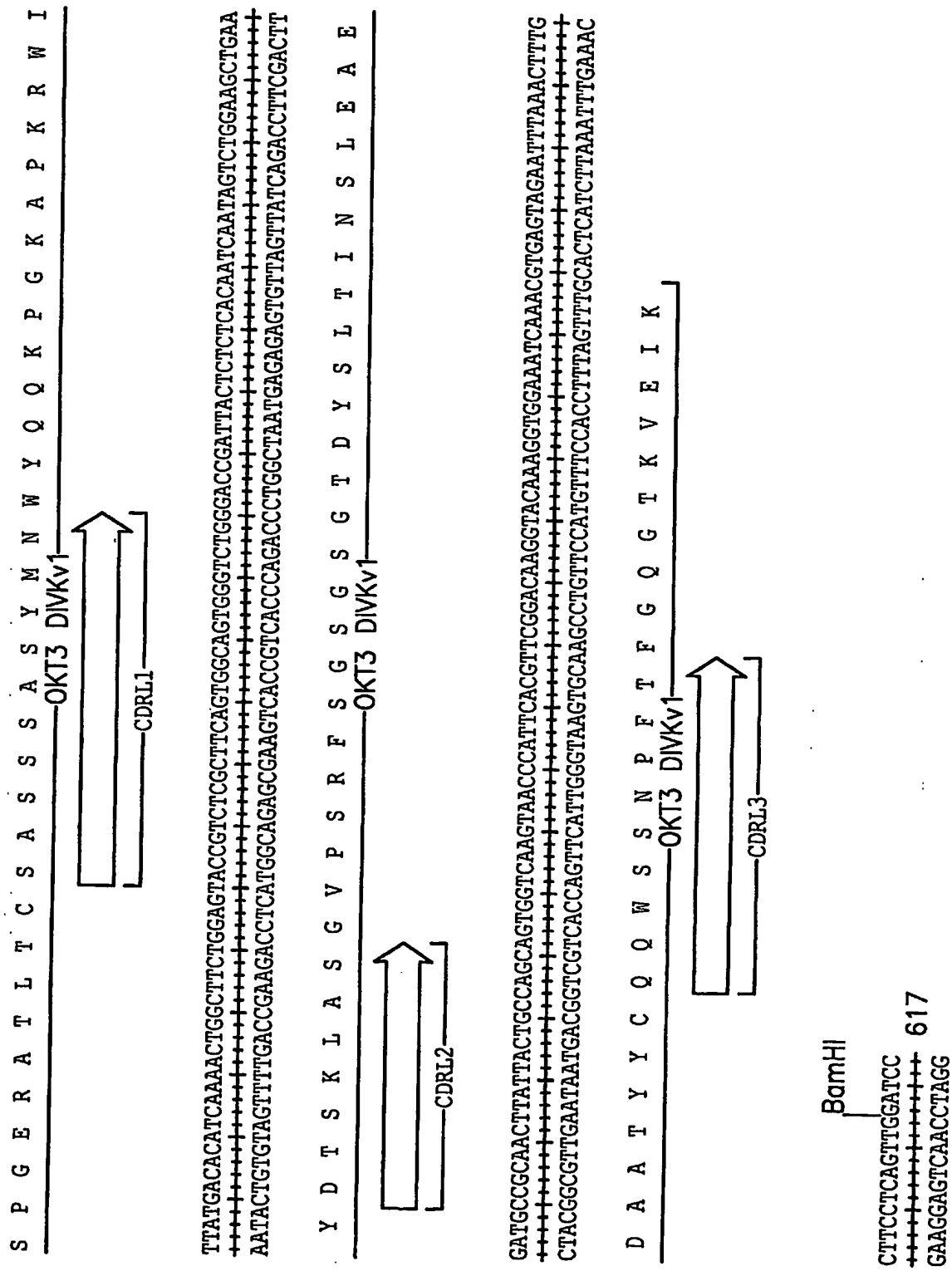
S P G E R A T L T C S A S S S A S Y M N W Y Q Q K P G K A P K R W I
OKT3 DIVKv1
CDRL1
TTATGACACATCAAAACTGGCTTCTGGAGTACCGTCTCGCTTCAGTGGCAGTGGGTCTGGGACCGATTACTCTCTCACAATCAATAGTCTGGAAGCTGAA
AATACTGTGTAGTTTTGACCGAAGACCTCATGGCAGAGCGAAGTCACCGTCACCCAGACCCTGGCTAATGAGAGAGTGTTAGTTATCAGACCTTCGACTT
Y D T S K L A S G V P S R F S G S G S G T D Y S L T I N S L E A E
OKT3 DIVKv1
CDRL2
GATGCCGCAACTTATTACTGCCAGCAGTGGTCAAGTAACCCATTCACGTTCGGACAAGGTACAAAGGTGGAAATCAAACGTGAGTAGAATTTAAACTTTG
CTACGGCGTTGAATAATGACGGTCGTCACCAGTTCATTGGGTAAGTGCAAGCCTGTTCCATGTTTCCACCTTTAGTTTGCACTCATCTTAAATTTGAAAC
D A A T Y Y C Q Q W S S N P F T F G Q G T K V E I K
OKT3 DIVKv1
CDRL3
BamHI
CTTCCTCAGTTGGATCC
GAAGGAGTCAACCTAGG
617

FIG. 14 (Cont.)

Murine and Chimaeric OKT3 binding to Jurkat, JRT3 and HPB–ALL cells
Values represent the positive % of gated cells in M1

Cell Type	Passage #	Murine OKT3	Mouse Isotype Control	Chimaeric OKT3	Human Isotype Control
Jurkat	12	81.20	0.5	94.68	0.44
JRT3	14	3.45	0.26	4.56	0.43
HPB–ALL	10	99.63	0.62	99.39	0.29

FIG. 15

Antibody	Clone No.	% Cells in M1	
		HPB-ALL	JRT3
Chimaeric OKT3	N/A	99.74	7.74
Control no OKT3 no PE	N/A	2.22	2.3
Control no OKT3 with PE	N/A	2.3	2.21
DMEM Control	N/A	1.91	2.42
DIVH1/DIVK1	19D6	93.87	2.16
DIVH2/DIVK1	24C12	28.47	2.34
DIVH3/DIVK1	27F6	84.75	2.28
DIVH4/DIVK1	30F7	93.06	2.65
DIVH5/DIVK1	35F2	98.15	2.77
DIVH6/DIVK1	37E9	97.85	3.08
DIVH7/DIVK1	42E7	98.62	3.12

FIG. 16

Table 3:

Antibody	Clone No.	% Cells in M1	
		HPB-ALL	JRT3
Chimaeric OKT3	N/A	99.95	0.1
Control no OKT3 no PE	N/A	0.1	0.02
DIVHv1/DIVK2	48G3	20.18	0.1
DIVHv2/DIVK2	52B8	90.04	0.25
DIVHv3/DIVK2	55G5	84.73	0.14
DIVHv4/DIVK2	55B2	69.26	0.13
DIVHv6/DIVK2	66C6	98.16	0.53
DIVHv7/DIVK2	70G10	95.57	0.66

FIG. 17

Competition assay. Inhibition of binding biotinylated mouse OKT3 by chimaeric and DeImmunised OKT3 antibodies, DIVHv1/DIVKv1, DIVHv3/DIVKv1, DIVHv5/DIVKv1, DIVHv6/DIVKv1, OKT3DIVH7/DIVKv1.

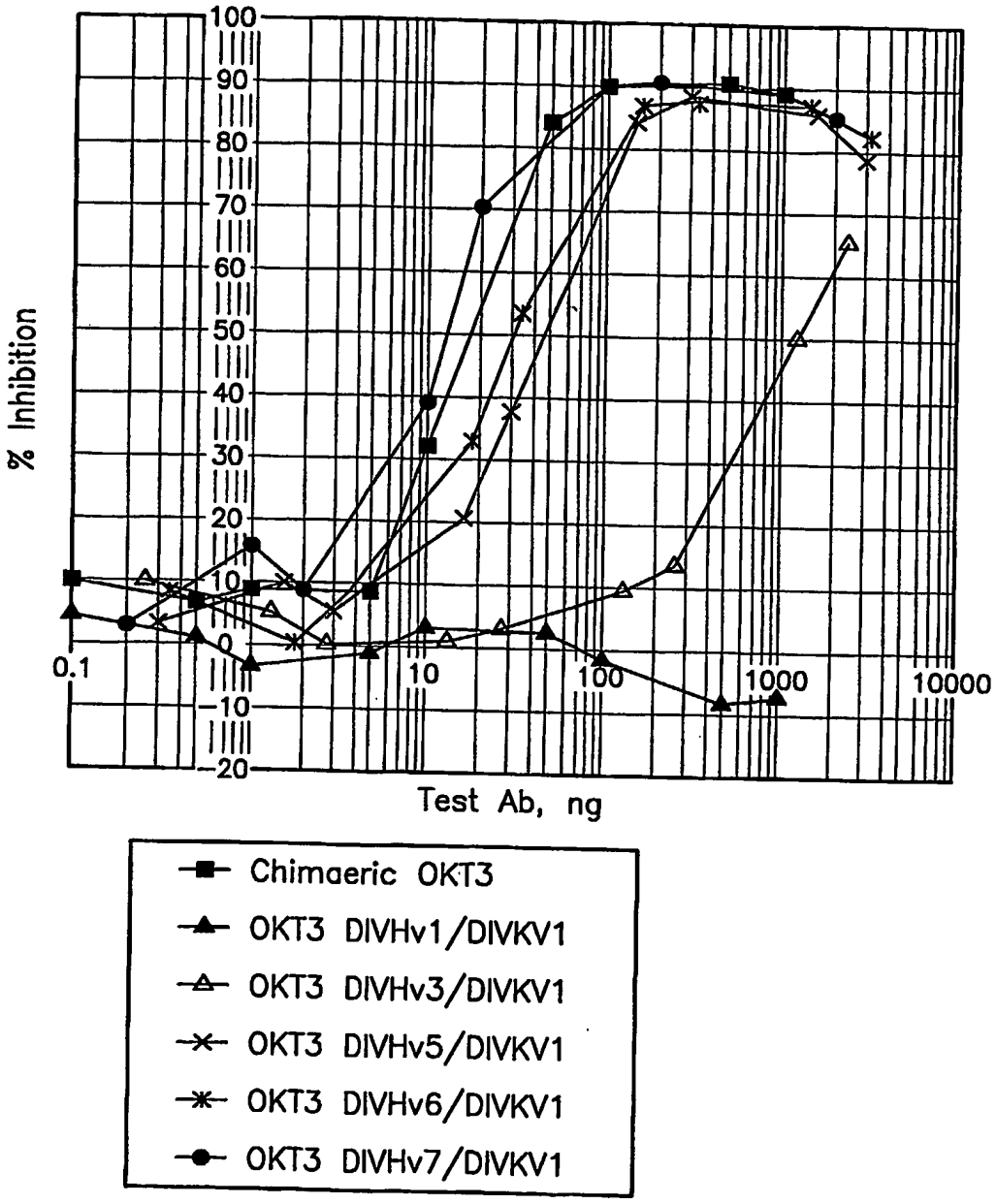

FIG. 18

Competition assay. Inhibition of binding biotinylated mouse OKT3 by mouse, chimaeric and DeImmunised OKT3 antibodies DIVHv2/DIVKv1, DIVHv4/DIVKv1.

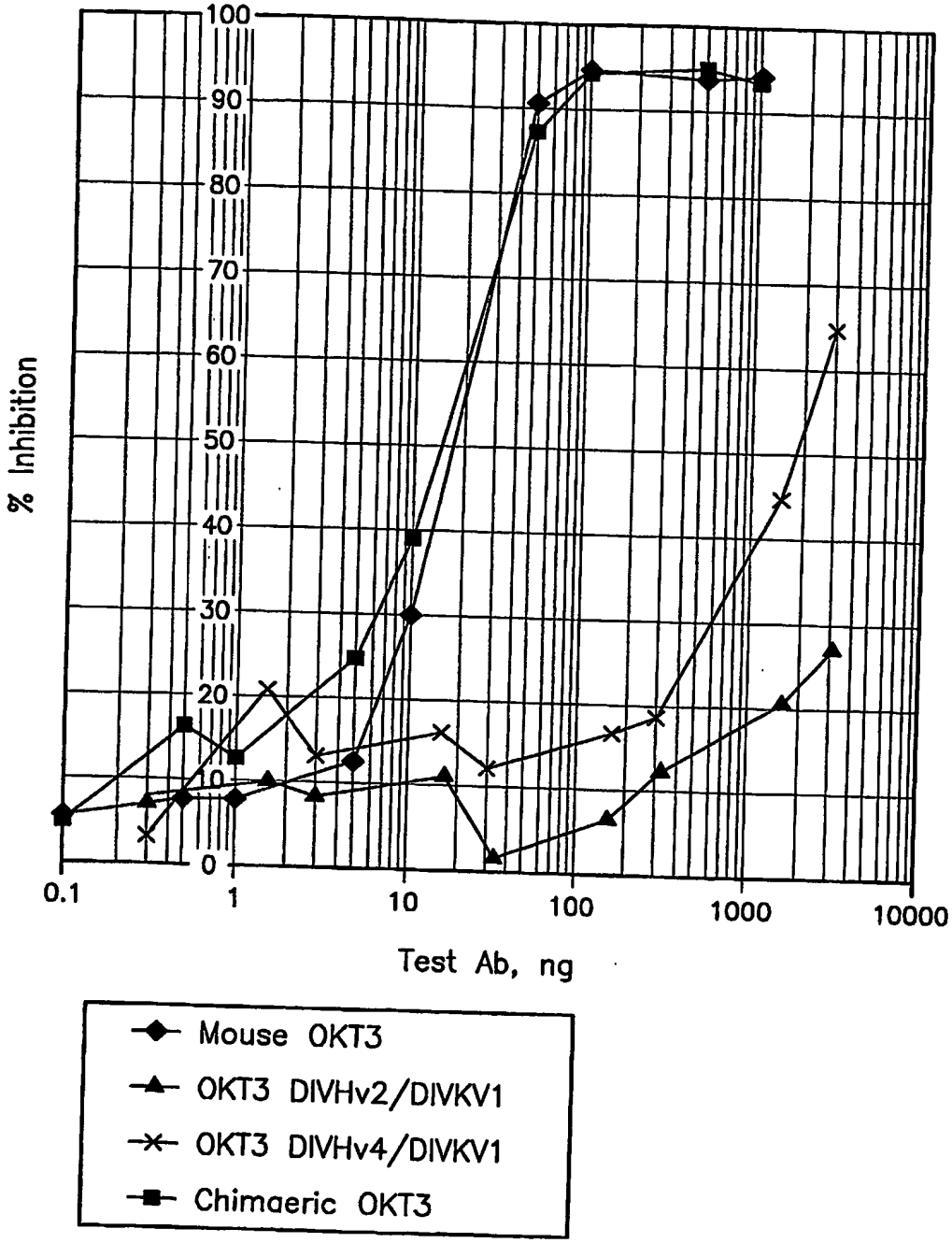

FIG. 19

Competition assay. Inhibition of binding biotinylated mouse OKT3 by mouse, chimaeric and DeImmunised OKT3 antibodies DIVHv3/DIVKv2, DIVHv7/DIVKv2.

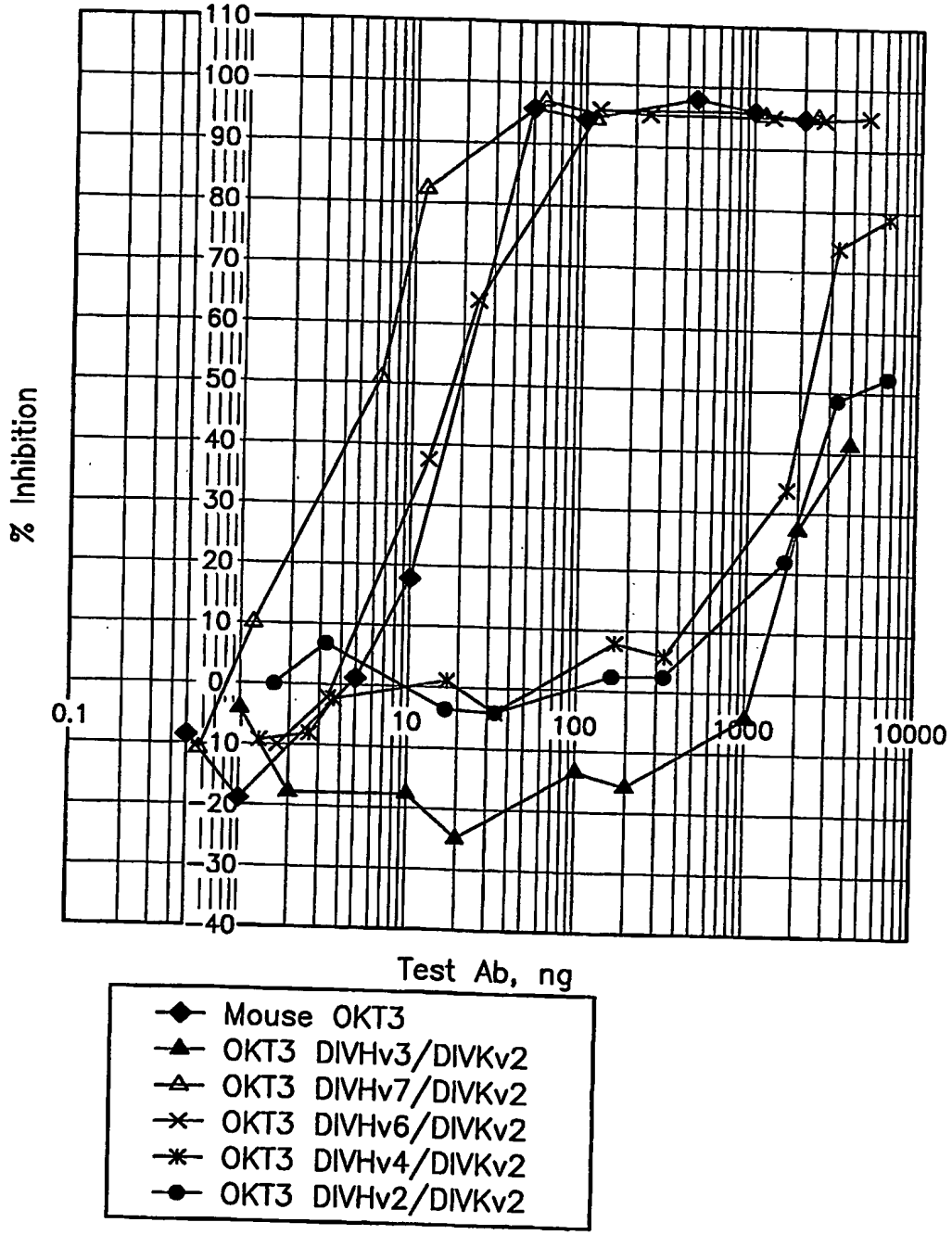

FIG. 20

Competition assay. Inhibition of binding biotinylated mouse OKT3 by mouse, chimaeric and DeImmunised OKT3 antibodies DIVHv1/DIVKv2, DIVHv1/DIVKv1, DIVHv5/DIVKv2, DIVHv5/DIVKv1.

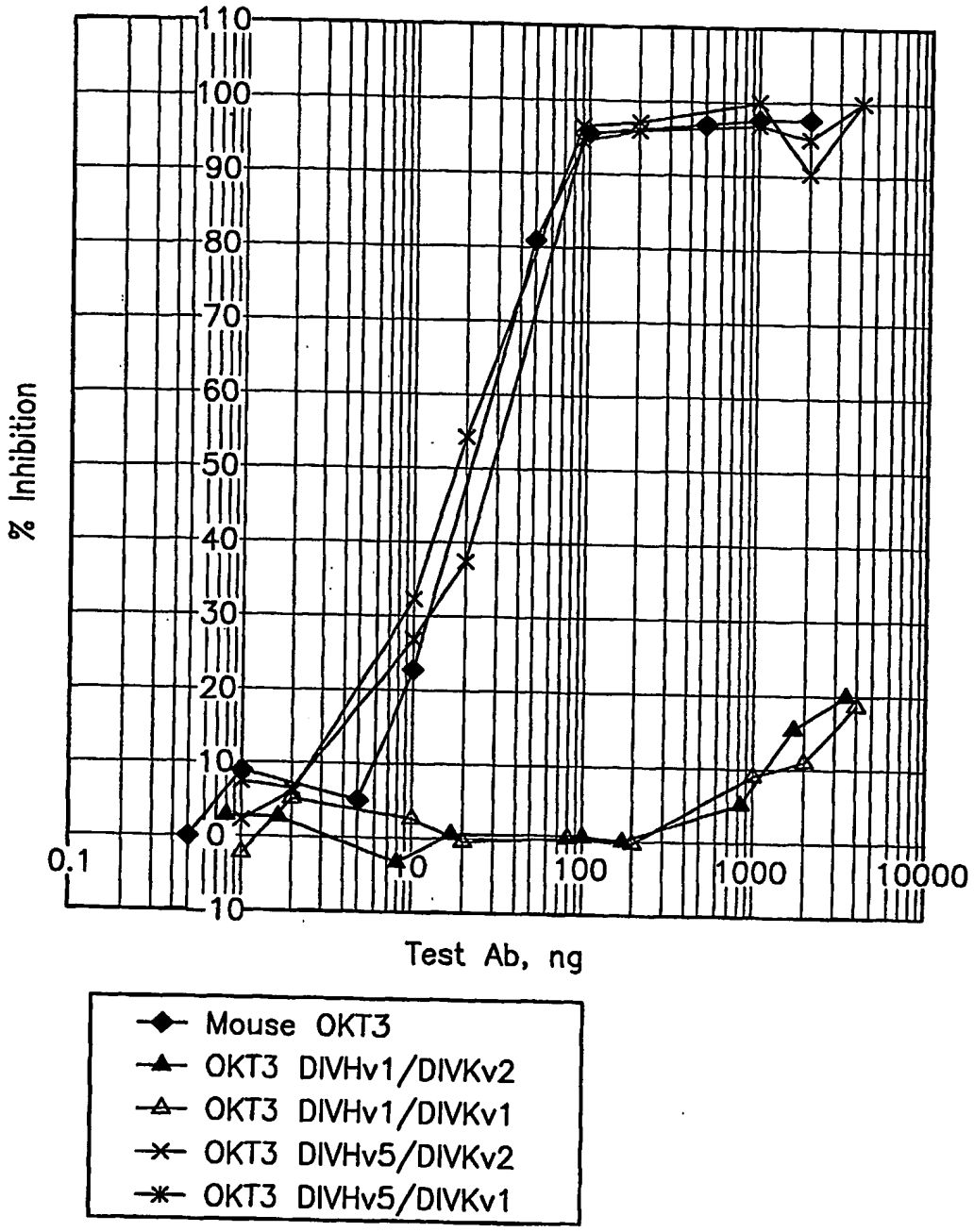

FIG. 21

The IC_{50} determinted from these plots are shown in Table 4.

Table 4:

ANTIBODY	IC50 (ng)
Murine OKT3 1	18
Murine OKT3 2	19
Murine OKT3 3	20
Chimeric OKT3 1	18
Chimeric OKT3 2	15
Di-immunized OKT3 DIVHv1/DIVKv1	N/A
Delm OKT3 DIVHv1/DIVKv1 2nd prep	>2000
De-immunized OKT3 DIVHv2/DIVKv1	>3000
De-immunized OKT3 DIVHv3/DIVKv1	1250
De-immunized OKT3 DIVHv4/DIVKv1	1900
De-immunized OKT3 DIVHv5/DIVKv1	45
Delm OKT3 DIVHv5/DIVKv1 2nd prep	19
De-immunized OKT3 DIVHv6/DIVKv1	30
De-immunized OKT3 DIVHv7/DIVKv1	12
De-immunized OKT3 DIVHv1/DIVKv2	>2000
De-immunized OKT3 DIVHv2/DIVKv2	>3000
De-immunized OKT3 DIVHv3/DIVKv2	>4000
De-immunized OKT3 DIVHv4/DIVKv2	2100
De-immunized OKT3 DIVHv5/DIVKv2	28
De-immunized OKT3 DIVHv6/DIVKv2	18
De-immunized OKT3 DIVHv7/DIVKv2	6

FIG. 22